Seismic Reflection and Seismic Refraction Surveying in Northeastern Illinois

Paul C. Heigold

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ILLINOIS STATE GEOLOGICAL SURVEY

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CONTENTS

Figures

Table

Abstract

As part of the Illinois State Geological Survey's comprehensive investigations to locate the most suitable site for construction of the proposed Superconducting Super Collider, approximately 17 miles of high resolution seismic reflection profiling and approximately 80 miles of seismic refraction profiling were performed.

Seismic reflection profiling was used to define the stratigraphy and structural geology of the proposed SSC site. The primary target of this profiling was the dolomite of the Ordovician Galena and Platteville Groups, since the tunnel that would have housed the proposed SSC would have been located in these rocks. In addition, the seismic reflection profiling provides a view of continuous sections of rocks to considerable depths, and thus, detailed information about the rocks of northeastern Illinois unavailable from discrete drill holes.

Seismic refraction profiling was used to examine the geologic framework of near-surface deposits at the proposed SSC site to aid in the construction of the SSC tunnel and the location of its attendant vertical service shafts. The kinds of information provided by this profiling--depth to bedrock (drift thickness) and lithology of both the drift and the bedrock surface--are relevant in many other areas: for example, in other types of construction, evaluation of groundwater, aggregates (crushed stone), and sand and gravel resources, and location of waste disposal sites.

Preface

The seismic exploration, conducted as part of the Illinois State Geological Survey's comprehensive investigation to locate the most suitable site for the construction of the Superconducting Super Collider, was carried out in two parts. The first part consisted of approximately 17 miles of high-resolution seismic reflection profiling. The results of this profiling, together with information gathered from available discrete drill holes, were used to define the stratigraphy and structural geology of the site proposed for the SSC. The primary target of the seismic reflection profiling was the dolomite of the Ordovician Galena and Platteville Groups, since the tunnel housing the proposed SSC would have been located in these strata. The second part consisted of approximately 80 miles of seismic refraction profiling to examine the depth and configuration of the bedrock surface, and the velocities of both the bedrock surface and the superjacent glacial drift from which inferences can be made about the nature of these rocks. These kinds of information were relevant not only to the construction of the SSC tunnel, but also to the location of its attendant vertical service shafts.

The information gathered from the seismic exploration, although particularly relevant to the proposed SSC, was beneficial for all of northeastern Illinois. The seismic reflection profiling provided information applicable to the overall understanding of the stratigraphic and structural relationships in northeastern Illinois. The seismic refraction profiling provided data that were used to improve existing maps of depth to bedrock and bedrock geology, which are used in construction, evaluation of groundwater, aggregate (crushed stone), and sand and gravel resources, and location of waste disposal sites in this part of Illinois.

I Seismic Reflection Profiling

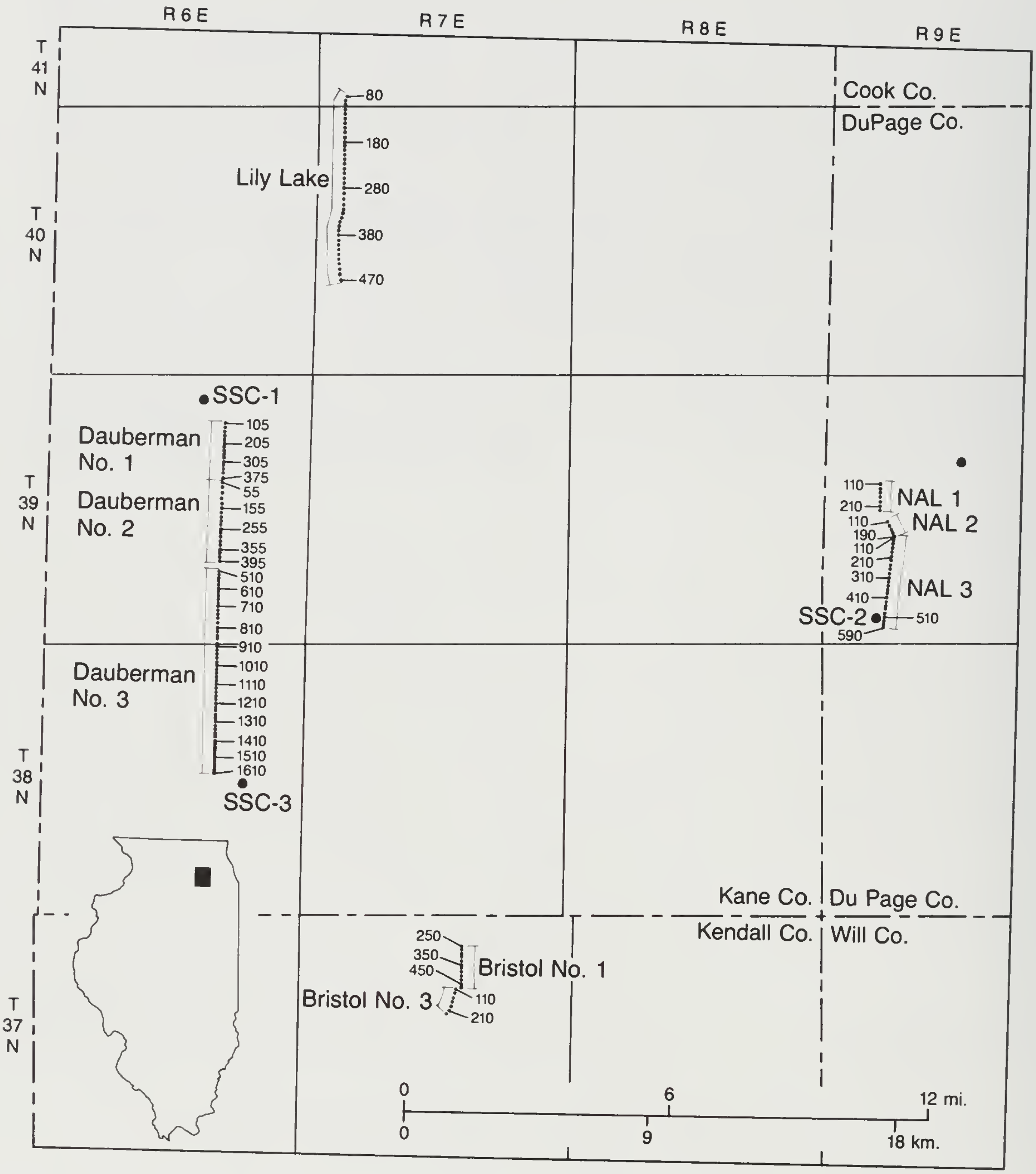


Figure 1 Location of seismic reflection lines.

Introduction

The Illinois State Geological Survey's comprehensive investigations to locate the most suitable site for the construction of the Superconducting Super Collider (SSC), a proton accelerator, included approximately 17 miles of high-resolution seismic reflection profiling at four discrete locations around the proposed ring (fig. 1). Since it was proposed that the SSC be place in a 10-foot diameter tunnel in dolomites of the Ordovician Galena and Platteville Groups underlying the site, these strata were the primary target of the seismic reflection profiling (fig. 2). In addition to information on Ordovician strata, seismic reflection sections generated at three of the locations contain information about sediments as old as Late Cambrian (Mt. Simon); a section generated at a fourth location contains information about Precambrian-age rocks (fig. 2).

Two of the locations where seismic reflection profiling was done, along Dauberman Road in T38 and 39N, R6E, Kane County and near the Fermi National Accelerator Laboratory in T39N, R9E, Du Page County (fig. 1), were chosen because experimental chambers associated with the SSC were to be sited there. The other two locations, near the town of Bristol in T39N, R7E, Kendall County, and near the town of Lily Lake in T40 and 41N, R7E, Kane County (fig. 1), were chosen to investigate the possibility of faulting. At the Bristol location, small-scale faulting was suspected from the results of previous test drilling and geologic mapping in the area. At the Lily Lake location, large-scale basement faulting had been suggested by McGinnis (1966), on the basis of mainly gravity and magnetic data.

The high-resolution seismic reflection data, gathered by Walker Geophysical Company of Essex, Iowa, proved to be a viable way to address specific stratigraphic and geological structure problems associated with the proposed location of the SSC, and also a way to obtain information about the rocks of northeastern Illinois, unavailable from discrete drill holes.

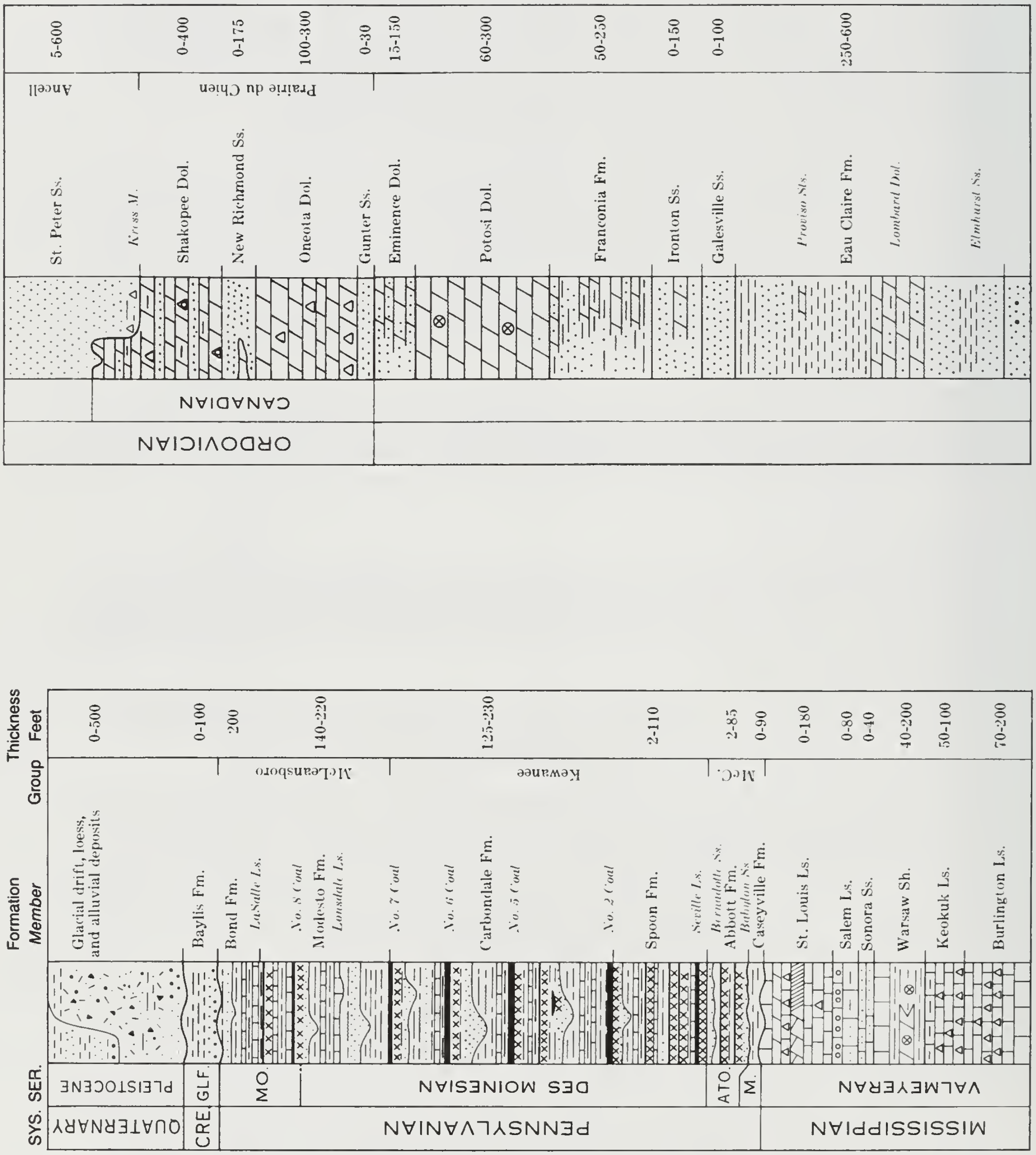
Geologic Setting

The geologic setting of the area in northeastern Illinois where the high-resolution seismic reflection work was done has been discussed at length in previous geological-geotechnical studies for siting the SSC in Illinois (Kempton et al. 1985; Vaiden et al. 1988). Geologic aspects from these studies pertinent to the acquisition, reduction, and interpretation of the seismic reflection data are discussed briefly in this report.

The study area is located on the Kankakee Arch, a broad positive structure that separates the Michigan and Illinois Basins and connects the Wisconsin Arch to the Cincinnati and Findlay Arches (fig. 3). In the study area the Kankakee Arch plunges gently to the southeast.

Along the four seismic reflection lines, the elevation of the earth's surface varies from about 650 feet to just beyond 1,000 feet above mean sea level. Glacial drift, ranging in thickness from 25 to more than 200 feet (fig. 4) overlies the Paleozoic bedrock surface (fig. 5). At some places the bedrock surface is dissected by valleys that commonly contain thick, coarse-grained sediments that serve as excellent conduits for shallow groundwater supplies. The presence of these valleys and the contained groundwater were important factors to be considered in the location and construction of the proposed SSC tunnel and attendant structures.

Bedrock in the study area consists of Cambrian, Ordovician, and Silurian strata that have a combined thickness of approximately 4,000 feet (fig. 2). The oldest sedimentary rocks in the area belong to the Mt. Simon Sandstone (Upper Cambrian). This poorly sorted, coarse-grained sandstone, which ranges in thickness from 1,400 to 2,600 feet in northeastern Illinois, rests unconformably on Precambrian basement. Other major unconformities occur at the bases of the Ancell Group (Ordovician) and the Silurian, and the bedrock surface (fig. 2). The Upper Ordovician and Silurian formations in northeastern Illinois dip gently eastward into the Michigan Basin, but the Cambrian and older Ordovician formations dip gently and thicken southward toward the Illinois Basin (Buschbach 1964). The bedrock surface of the study area (fig. 5) comprises Silurian carbonates and shales and minor amounts of dolomite of the Maquoketa Group (Upper Ordovician).


SYS.
SER.
Formation
Member
Group
Thickness Feet
QUATERNARY
PLEISTOCENE
Glacial drift, loess, and alluvial deposits
0-500
CRE.
GLF.
Baylis Fm.
0-100
PENNSYLVANIAN
MO.
Bond Fm.
200
LaSalle Ls.
No. 8 Coal
Modesto Fm.
Lonsdale Ls.
McLeansboro
140-220
DES MOINESIAN
No. 7 Coal
No. 6 Coal
Carbondale Fm.
No. 5 Coal
Kewanee
125-230
No. 2 Coal
Spoon Fm.
2-110
Seville Ls.
ATO.
Bernadotte Ss.
Abbott Fm.
McC.
2-85
M.
Babylon Ss.
Caseyville Fm.
0-90
MISSISSIPPIAN
VALMEYERAN
St. Louis Ls.
0-180
Salem Ls.
0-80
Sonora Ss.
0-40
Warsaw Sh.
40-200
Keokuk Ls.
50-100
Burlington Ls.
70-200
ORDOVICIAN
CANADIAN
St. Peter Ss.
Ancell
5-600
Kress M.
Shakopee Dol.
Prairie du Chien
0-400
New Richmond Ss.
0-175
Oneota Dol.
100-300
Gunter Ss.
0-30
Eminence Dol.
15-150
Potosi Dol.
60-300
Franconia Fm.
50-250
Ironton Ss.
0-150
Galesville Ss.
0-100
Proviso Sts.
Eau Claire Fm.
Lombard Dol.
Elmhurst Ss.
250-600

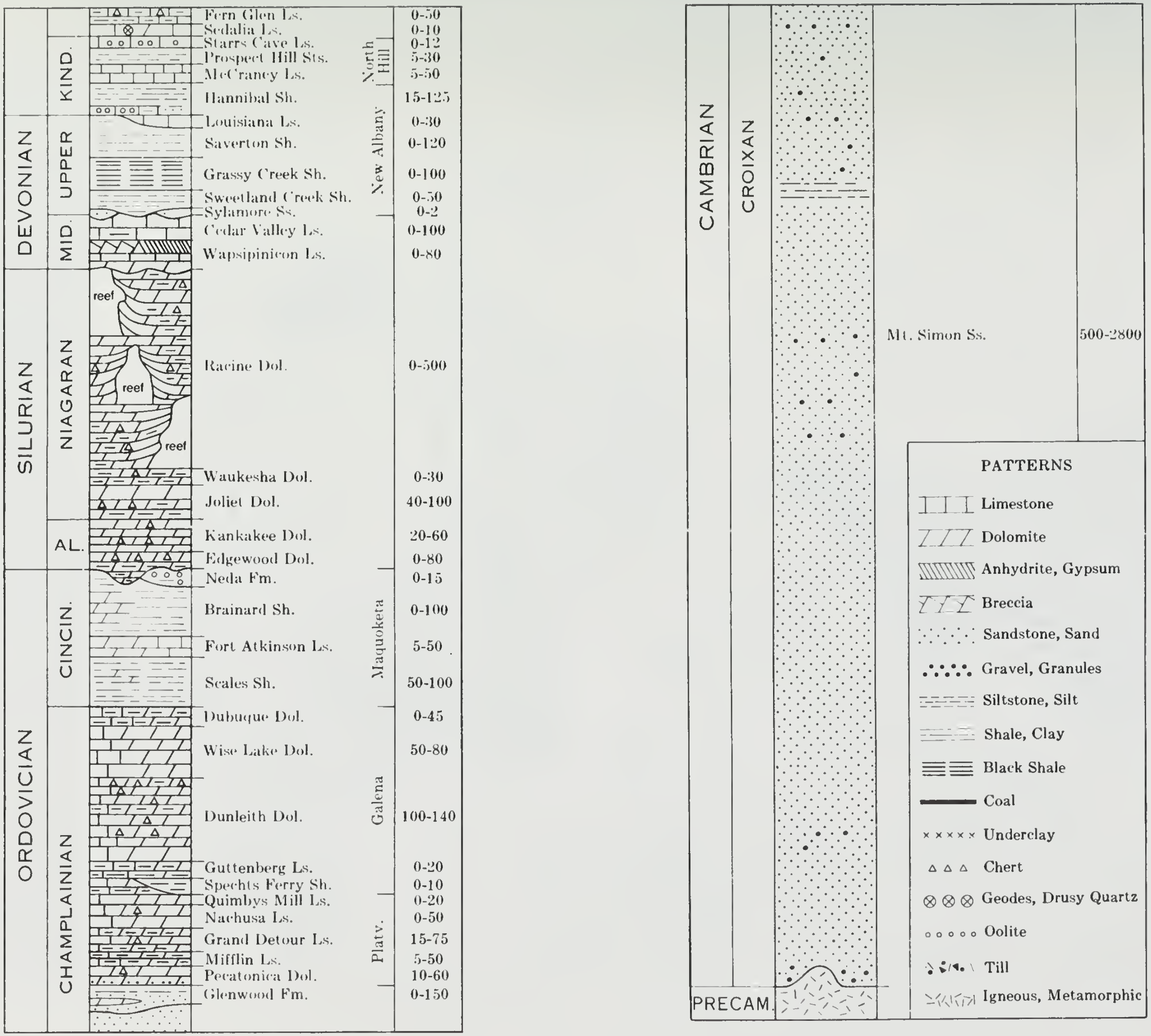


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Figure 2 Stratigraphic column of bedrock units in Northern Illinois.

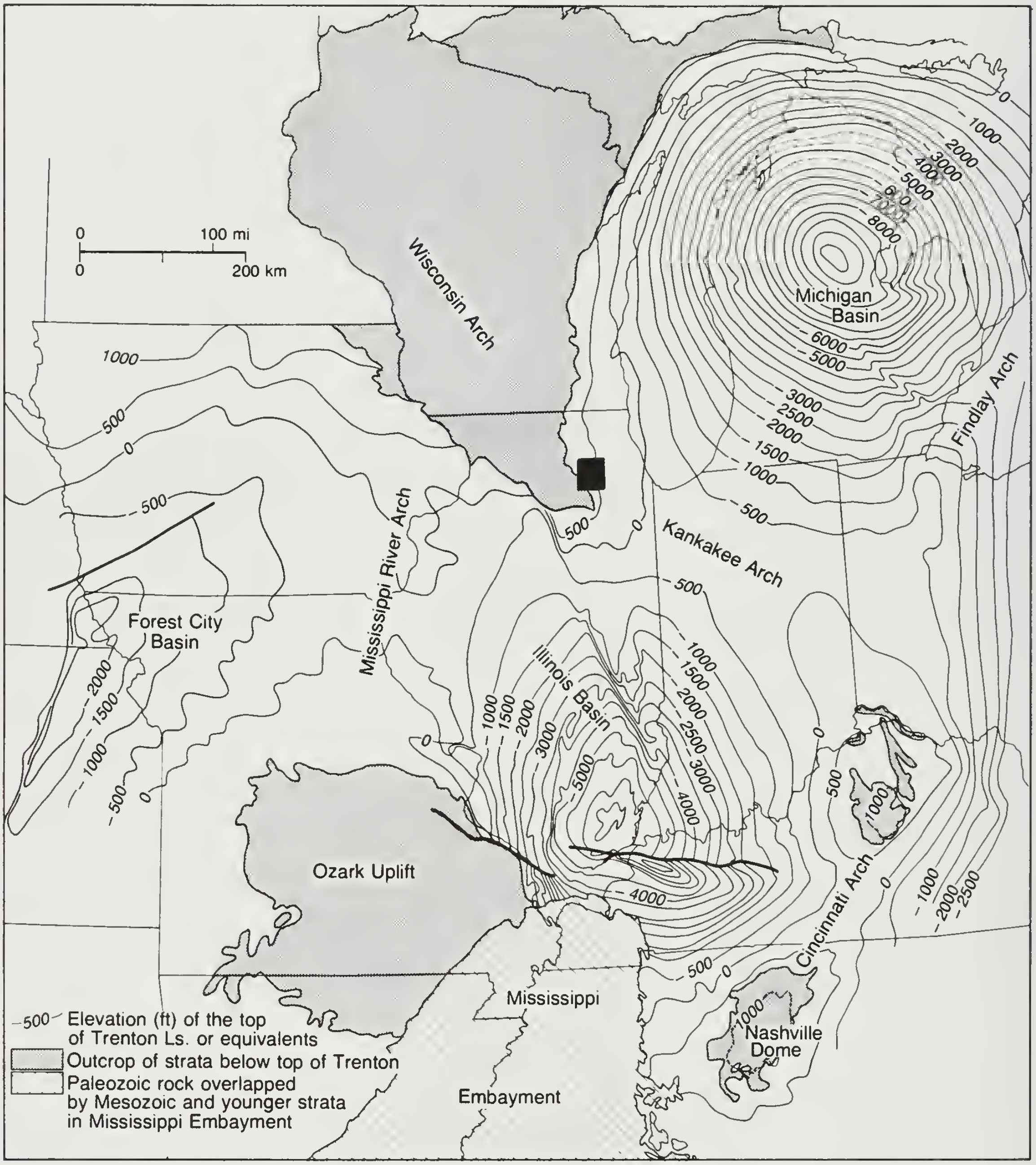


Figure 3 Regional geologic setting.

Field Techniques and Instrumentation

Field parameters for the high-resolution seismic reflection profiling were chosen on the basis of calculation, experience, and testing. Since detailed structural and stratigraphic information was required for the construction of the proposed SSC tunnel, close-source and receiver spacing, high common depth- point (CDP) fold, and a fast sample rate for wide-band recording were necessary to obtain good quality data in noisy suburban areas. One line crossed an interstate highway, and all lines ran along heavily traveled roads. The actual field parameters used are summarized in appendixes A, B, C, and D.

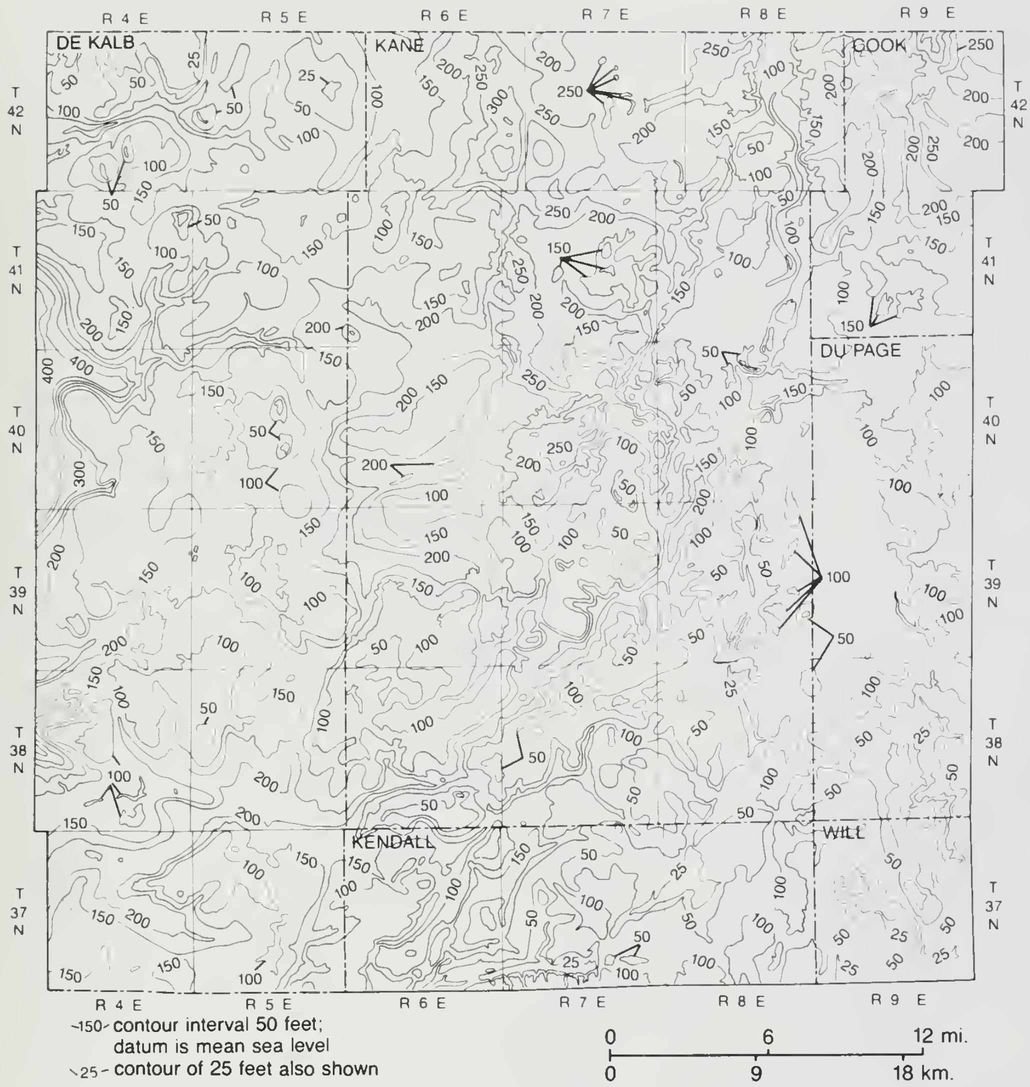


Figure 4 Drift thickness map of the study area.

The recording instrument was a Texas Instrument DFSV. Single hydrophone receivers (Mark Products P-44 10 Hz) were placed in shot holes about 10 feet below the water table, generally 10 to 25 feet below the ground surface. The energy source used on three of the lines (Dauberman Road, Bristol, and Fermilab) was a downhole air gun (Bolt Model DHSS 550) equipped with a chamber, 10 in.^{3}, operated at a nominal pressure of 1,800 lbs/in.^{2}. The optimum locations for firing the air gun were at the top of the water table or a few feet deeper. On the fourth seismic reflection line (Lily Lake), where information about Precambrian rocks was required, the energy source was 0.33 to 1.00 lbs. of dynamite.

Data Processing

Data processing sequences began with an amplitude spectrum analysis. Since frequencies more than 400 Hz were at least -40dB, the data were resampled from 0.5 to 1.0 milliseconds. Record length was 1.0 second, but on all lines except the Lily Lake line only 0.5 or 0.6 second were processed. On the Lily Lake line, 1.0 second was processed. Initial stacking velocities were derived from available sonic logs. Subsequent stacking velocities were obtained from velocity analysis of the seismic data. The seismic sections were not migrated. Additional information on the data processing is given in appendixes A, B, C, and D.

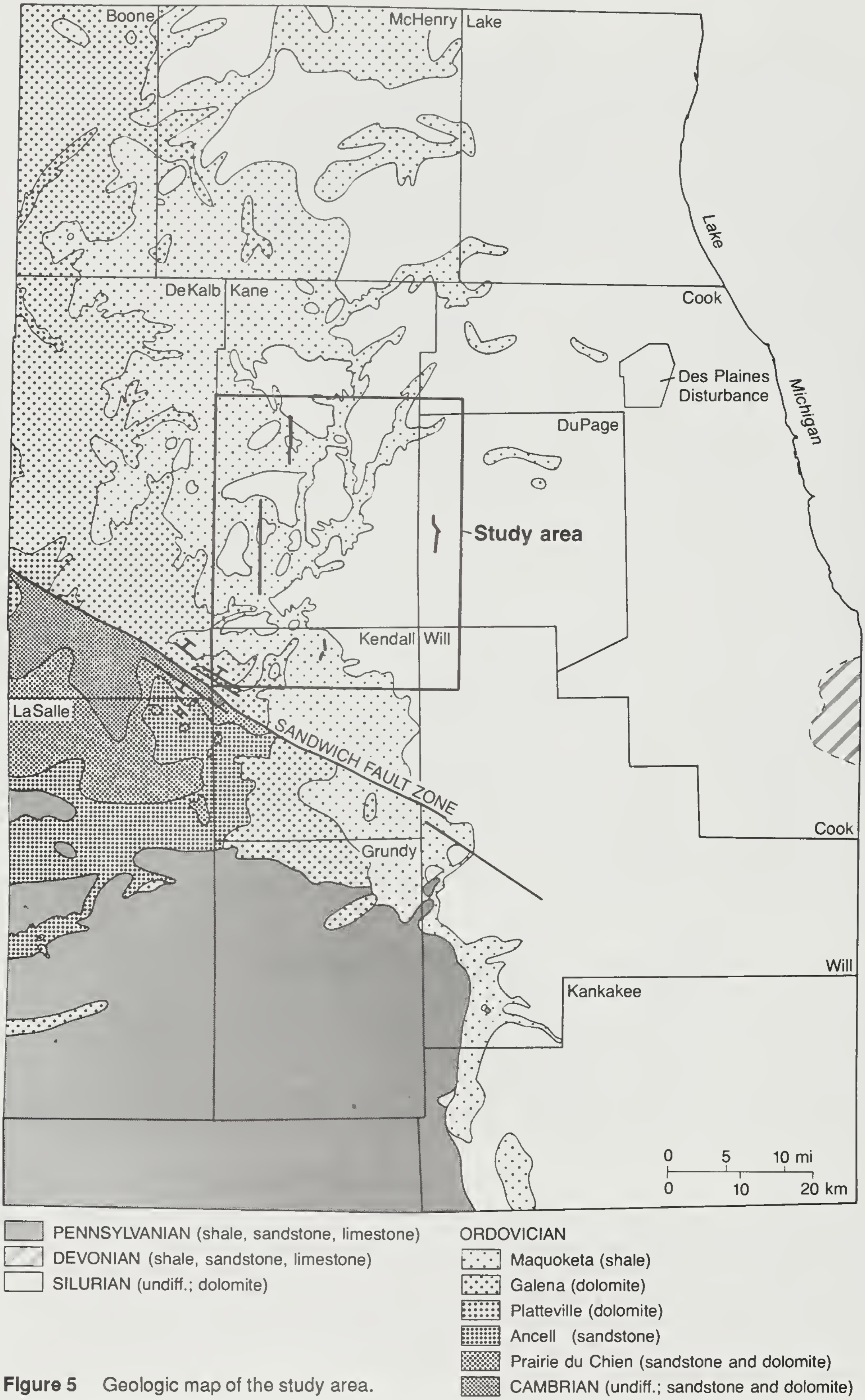


Figure 5 Geologic map of the study area.

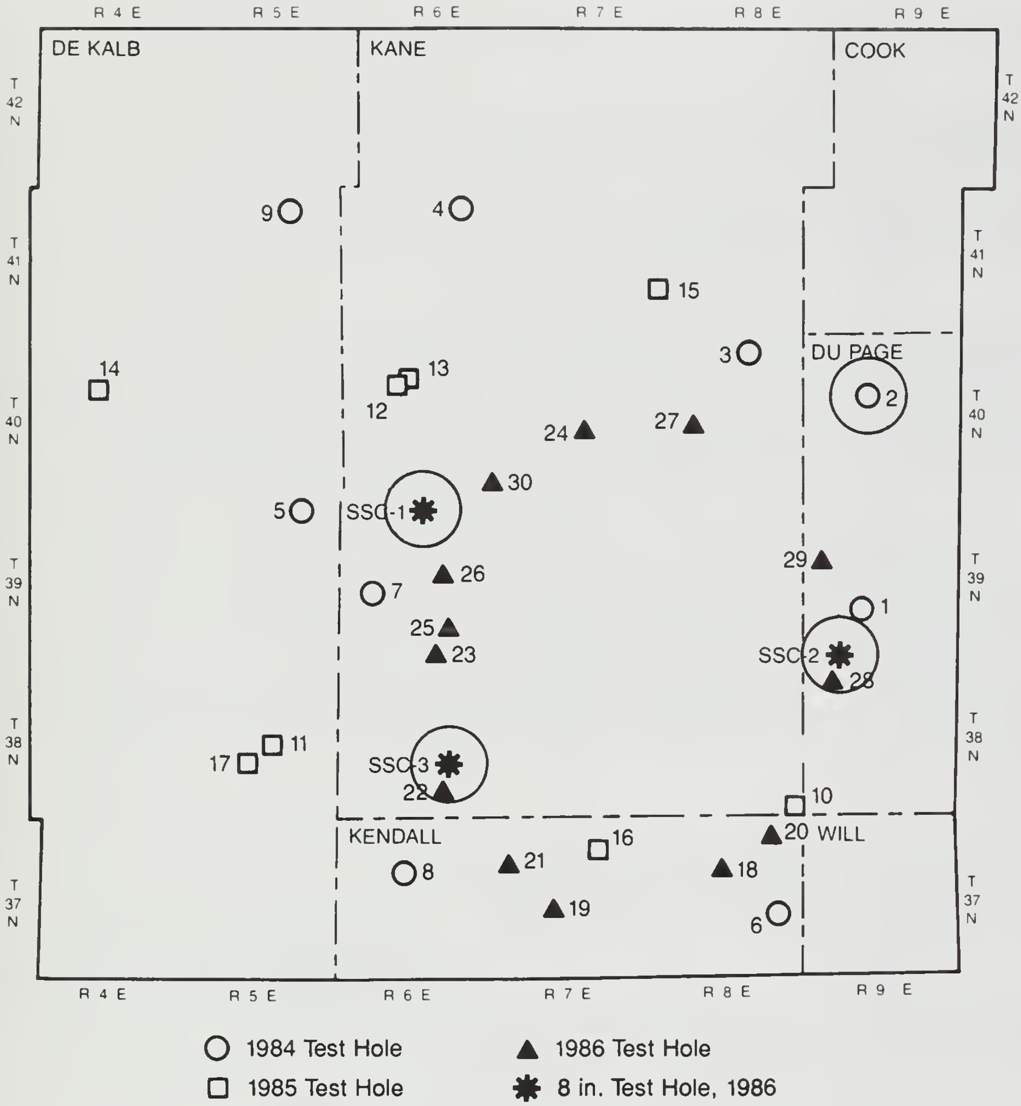


Figure 6 Location of key drillholes used to constrain interpretation of seismic reflection sections.

Interpretation

A considerable amount of geologic information is available for the region in which these seismic reflection lines were run. This information includes reports on local and regional studies conducted by the ISGS, graduate student theses, logs and samples of water wells and engineering borings in the ISGS files, and records of subsurface drilling and sampling programs conducted for water resource studies of northeastern Illinois (Kempton et al. 1985; Vaiden et al. 1988). Studies by Buschbach (1964), Willman (1973), Willman and Kolata (1978), Willman et al. (1975), Willman and Frye (1970), Willman (1971), Horberg (1950), Kolata and Graese (1983), Lineback (1979), Piskin and Bergstrom (1967, 1975), and Willman et al. (1967) were particularly useful in interpretation of the seismic reflection sections.

Three 8-inch diameter holes near the Dauberman Road and Fermilab seismic reflection line were included in the test drilling and coring program conducted for siting the SSC in Illinois (fig. 6). The 8-inch diameter was chosen to accommodate sondes used in downhole geophysical logging. Sonic and density logs were particularly important to the interpretation of the seismic reflection sections. Sonic logs from the three 8-inch holes were used to calculate interval velocities (figs. 7,

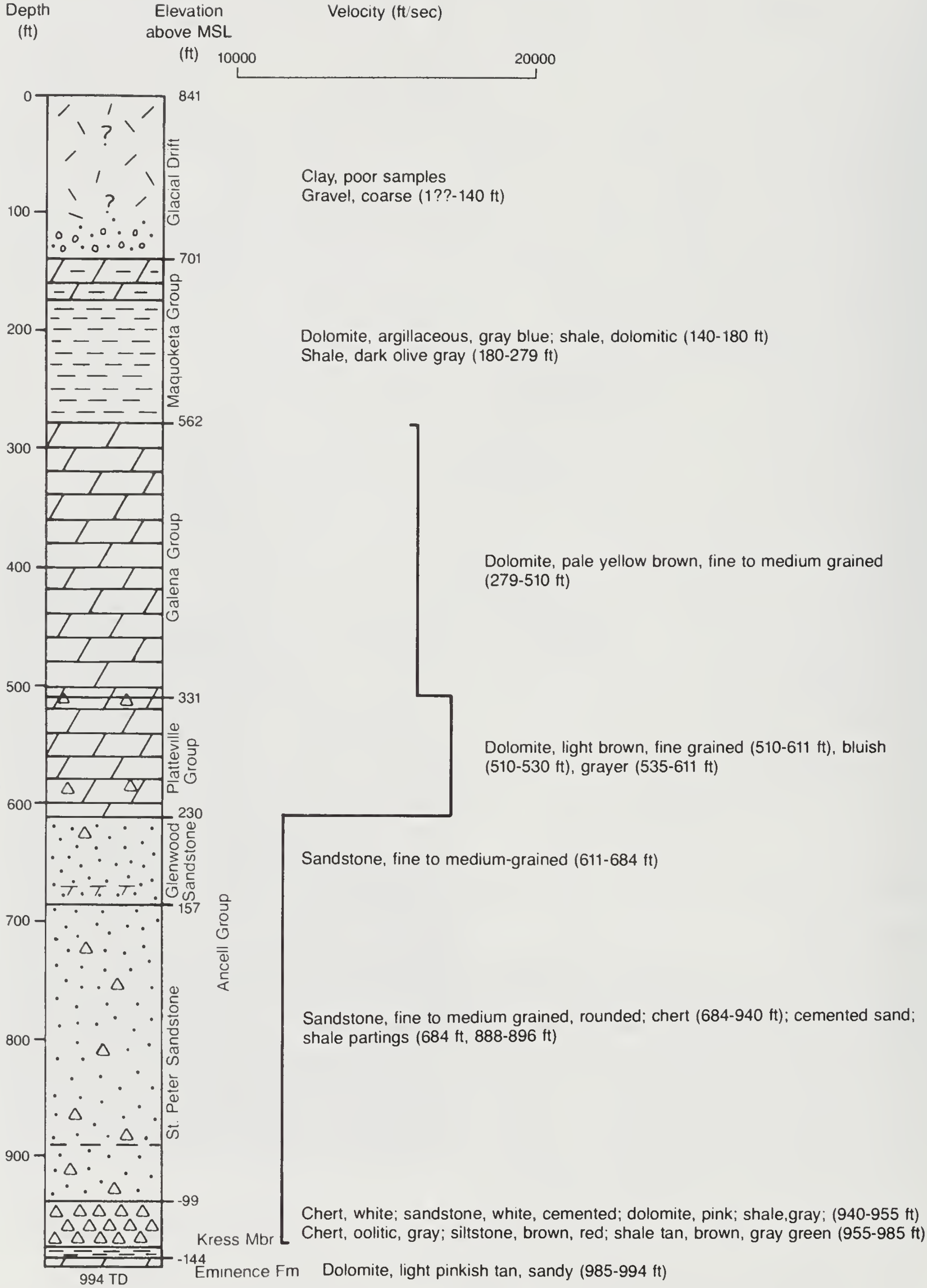


Figure 7 Stratigraphic column and interval velocities from test hole SSC-1.

8, and 9). The sonic and density logs run in test hole SSC-2 near the Fermilab line were used to construct a synthetic seismogram (fig. 10).

All the large-diameter test holes bottomed out just below the base of the Ancell Group. Holes SSC-1 and SSC-3, near the Dauberman Road line, bottomed out in the Eminence Formation (Upper Cambrian) and Oneota Formation (Lower Ordovician), respectively; SSC-2, near the Fermilab line, bottomed out in the Shakopee Formation (figs. 7, 8, and 9). Because proposed experimental chambers were to be located along Dauberman Road and near Fermilab, the large diameter holes were drilled only to depths necessary to provide information about the tunnel and the experimental chambers.

Velocity and density information useful in interpreting the portions of the seismic reflection sections deeper than the base of the Ancell came from sonic and density logs. These logs were run in 1986 in a deep hole that penetrated basement in Section 9, T39N, R9E, in Du Page County, just a few miles from the north end of the Fermilab seismic reflection line (fig. 11). As mentioned above, the Dauberman Road, Bristol, and Fermilab sections provided information about the rock to the depth of the Mt. Simon Formation (Upper Cambrian), whereas the Lily Lake section provided information to the depth of Precambrian rocks.

On the seismic reflection sections shown in this report (figs. 12, 13, 14, and 15), several reflections were associated with geologic interfaces where large acoustic impedance contrasts are known to exist. The strength, coherence, and continuity of these reflections can vary appreciably for several reasons, many of which are geologically significant. However, given the proximity of the seismic reflection lines in this study, enough of these reflections can be consistently traced across these sections to interpret confidently the salient stratigraphic and structural nature of the geologic formations.

Dauberman Road Seismic Reflection Line

The seismic reflection line along Dauberman Road in T38 and 39, R6E, Kane County, Illinois (figs. 1 and 12) was shot from north to south in three segments, D1, D2, and D3; their lengths were 1.47, 1.82, and 4.68 miles, respectively. Because parts of the segments overlapped, the total line was approximately 7.5 miles long.

Field parameters and the processing sequence for each segment of the Dauberman Road line are given in appendix A. Although the record length for each segment was 1.0 second, only 0.5 second was processed for the segments D1 and D2, and only 0.6 second was processed for segment D3. These section lengths were adequate given the purpose of this line, which was to examine the Ordovician strata in which the experimental chambers were to be constructed. These sections do not contain information about the lower Mt. Simon Formation (Upper Cambrian) or subjacent Precambrian rocks.

Topographic elevation of the earth's surface along the Dauberman Road line, although somewhat irregular, generally decreases from a high of approximately 840 feet above mean sea level near the north end of segment D1 to a low of approximately 700 feet above sea level near the south end of segment D3.

The glacial drift along this line varies in thickness from more than 100 feet to as much as 200 feet (Piskin and Bergstrom 1975). Test holes SSC-1 and SSC-3 near the north and south ends of this line showed glacial drift thicknesses of 140 and 133 feet, respectively. Greater drift thicknesses may be associated with bedrock valleys, which are common in northeastern Illinois.

The bedrock surface along this line is, for the most part, composed of rocks of the Maquoketa Group (Upper Ordovician) and Silurian outliers (Willman et al. 1967); therefore, shales and carbonates can be expected at the bedrock surface. Test holes SSC-1 and SSC-3 encountered Maquoketa dolomite, probably the Ft. Atkinson, at the bedrock surface (Vaiden et al. 1988).

On the Dauberman Road sections, reflections have been identified at the following geologic interfaces, in descending order: bedrock surface, top of the Galena Group (Middle to Upper Ordovician), top of the Ancell Group (Middle Ordovician), base of the Ancell Group, top of the

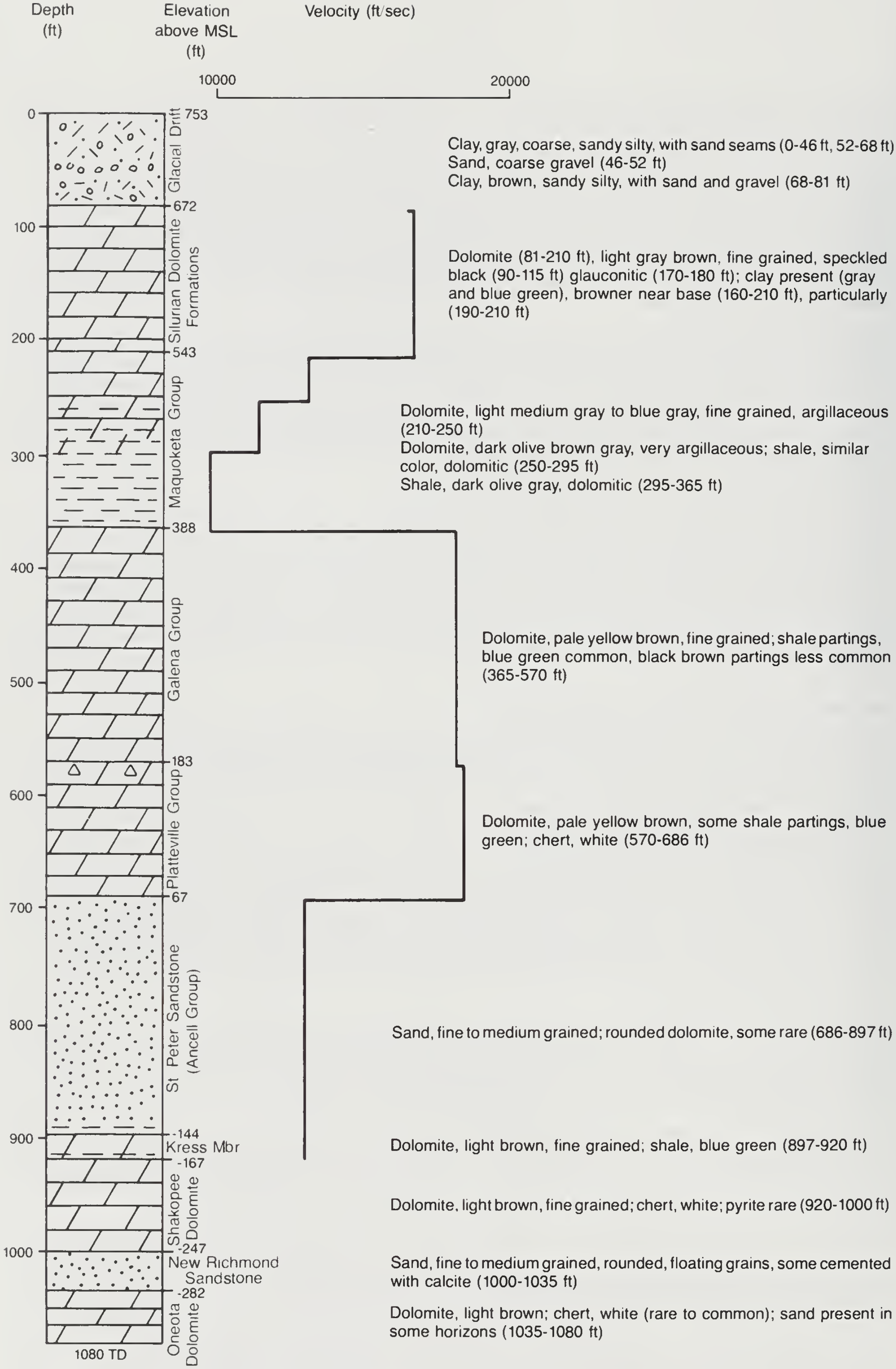


Figure 8 Stratigraphic column and interval velocities from test hole SSC-2.

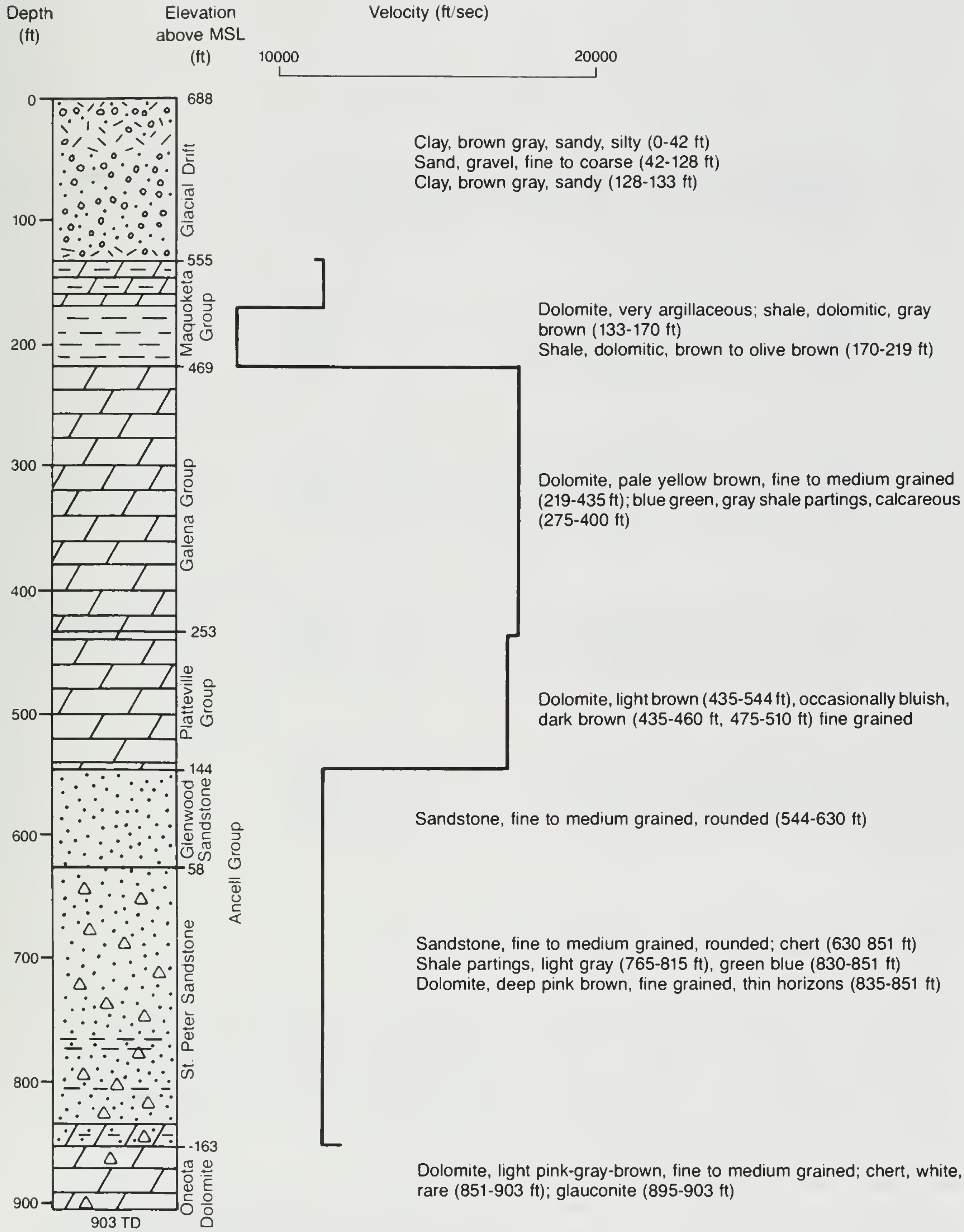


Figure 9 Stratigraphic column and interval velocities from test hole SSC-3.

Figure 10 Synthetic seismogram constructed from sonic and density logs.

Franconia Formation (Upper Cambrian), and top of the Lombard Member of the Eau Claire Formation (figs. 1 and 12). No discernible reflections were below 0.4 second. This two-way travel time would correspond to a reflection emanating from a surface below the top of the Mt. Simon Formation (Upper Cambrian). The absence of reflections below 0.4 second possibly was due to a lack of energy provided by the air-gun energy source or, more likely, it was the result of an absence of appreciable vertical impedance contrasts in the Mt. Simon.

The shallow reflection corresponding to the drift-bedrock contact can be traced intermittently across sections D1, D2, and D3. The quality of this reflection is dependent not only on the lithology of the bedrock surface (carbonates and clastics), but also on the amount of weathering on this surface. Between shot points 355 on section D1 and shot point 105 on section D2 (figs. 1 and

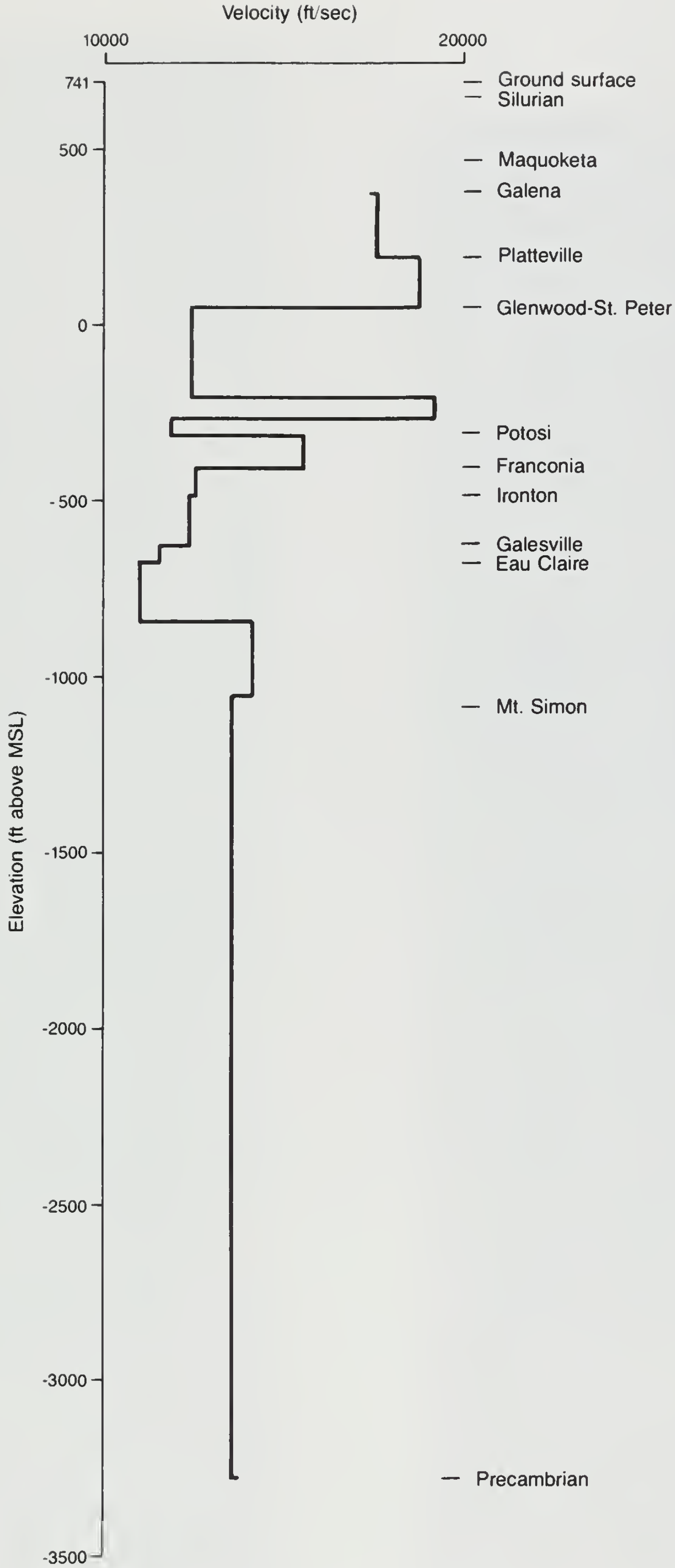
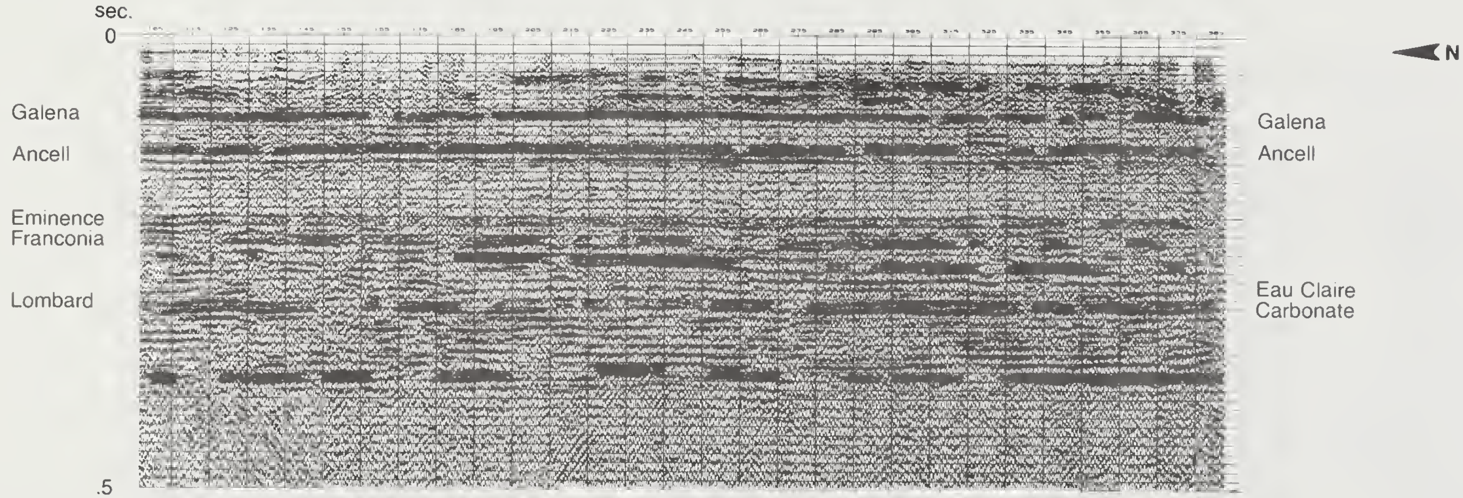
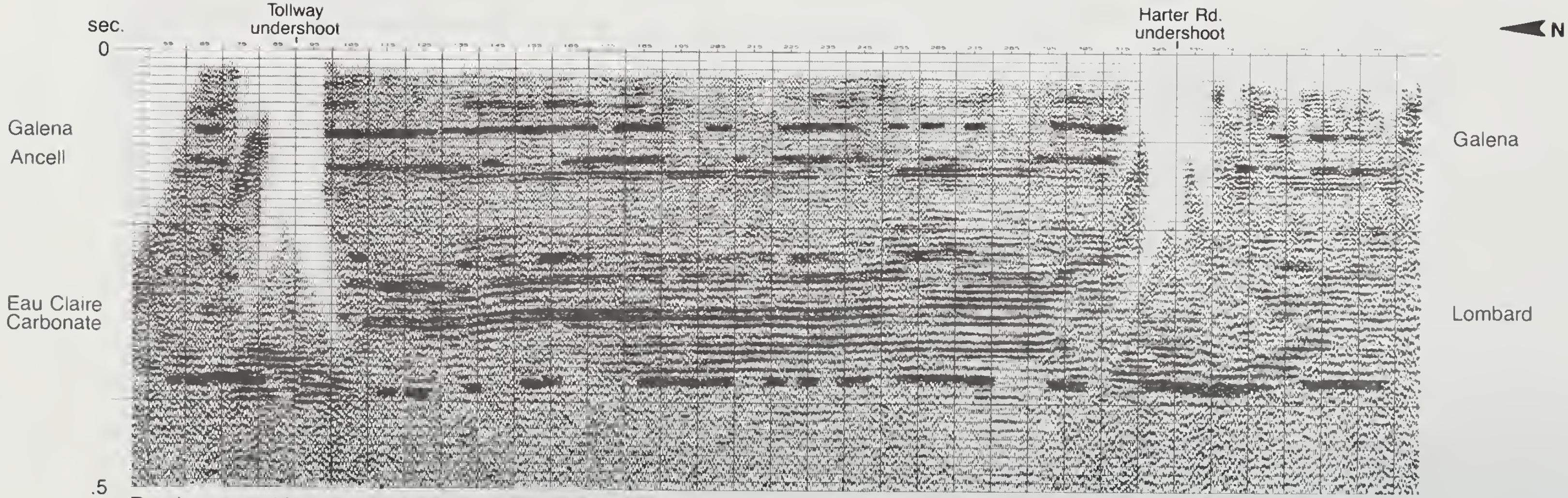


Figure 11 Interval velocities from deep hole in Du Page County.



Dauberman No. 1



Dauberman No. 2

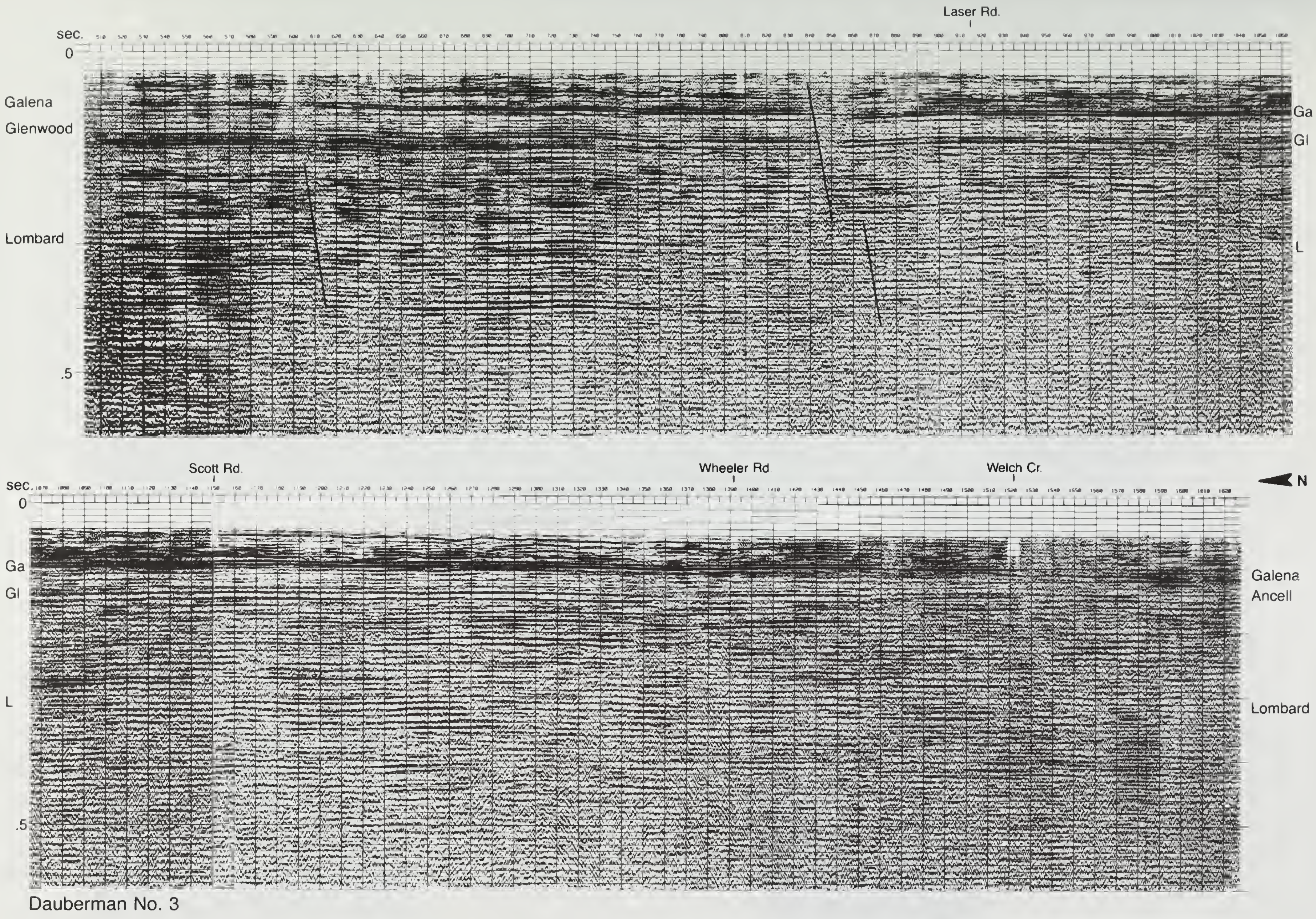


Figure 12 Dauberman Road seismic reflection sections.

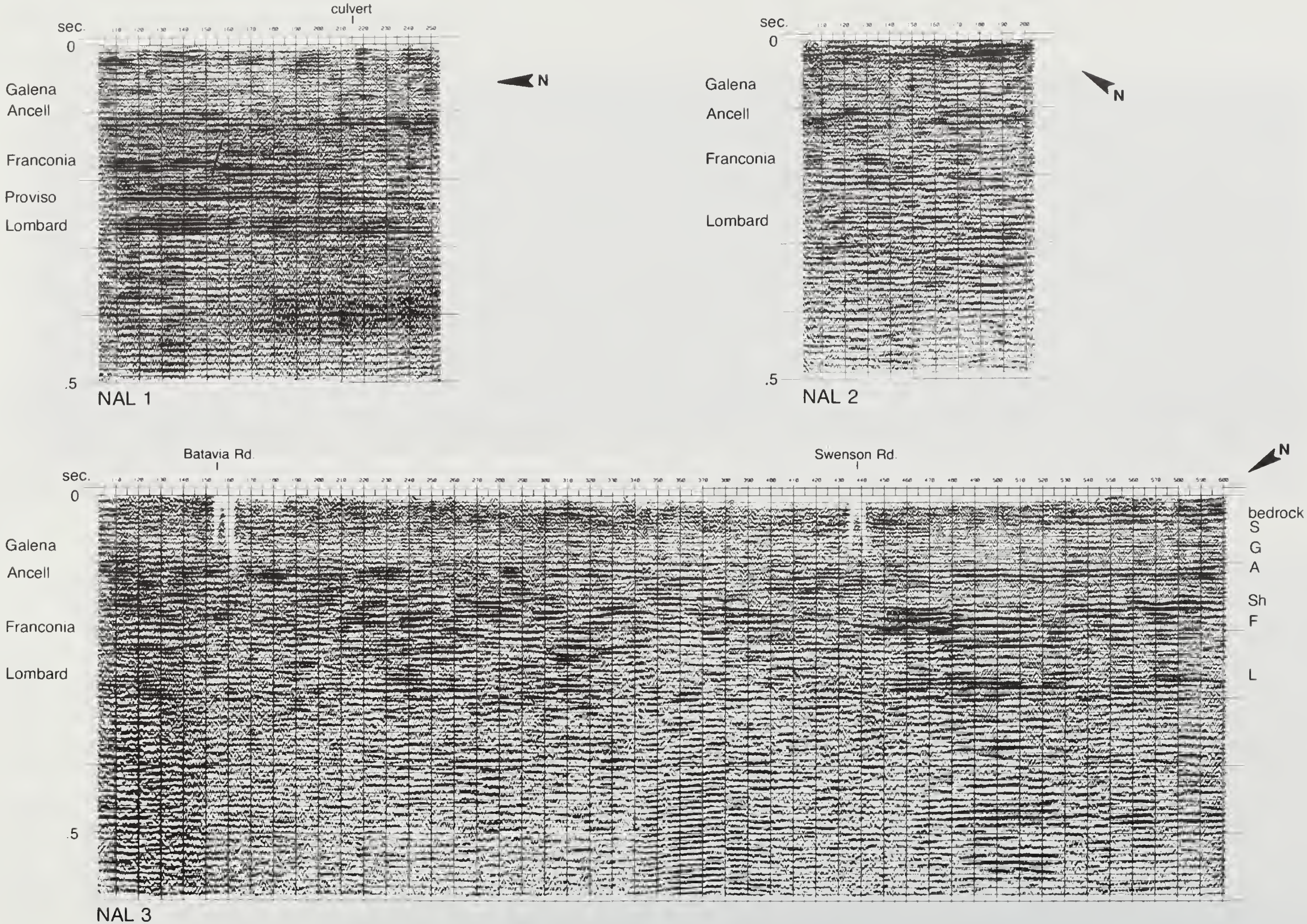


Figure 13 Fermilab seismic reflection sections.

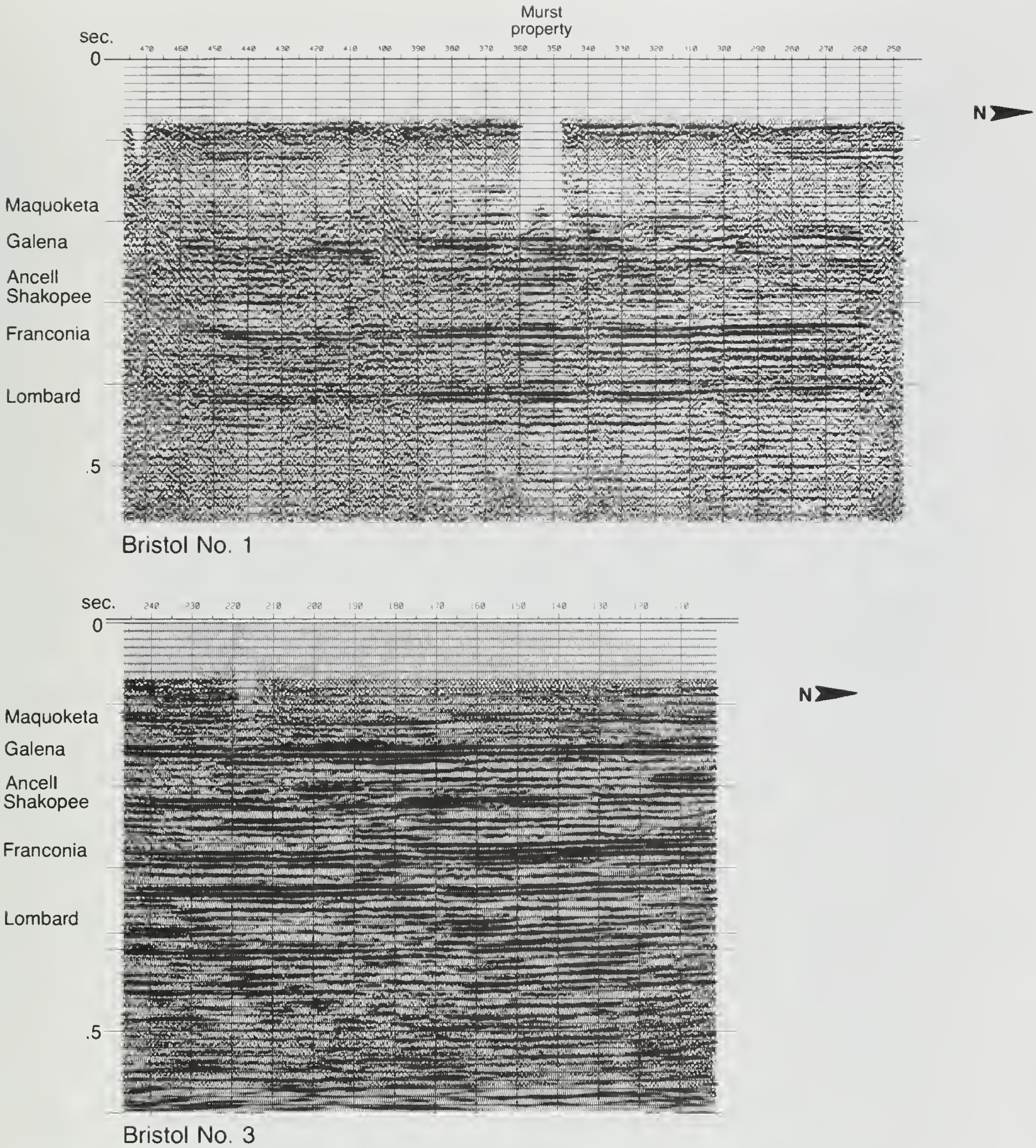


Figure 14 Bristol seismic reflection sections.

12) was evidence of a channel cut into the bedrock, although this evidence was disturbed by muting associated with undershooting where the line crossed the East-West Tollway.

The reflection associated with the Maquoketa-Galena contact was consistently the strongest, most coherent, and most continuous of all reflections on sections D1, D2, and D3. This was a result of the sharp contrast between the relatively low acoustic impedance Maquoketa clastics that rest on the relatively high acoustic impedance Galena carbonates. The Maquoketa-Galena contact and Platteville-Ancell Group contact were the two most important targets for the SSC project, because the SSC tunnel was to be constructed in the Galena and Platteville Groups. The reflection associated with the Platteville-Ancell contact could be followed easily across sections D1, D2, and D3 even though it had reverse polarity from, and less strength than, the reflection at the Maquoketa-Galena contact because of a downward decrease in acoustic impedance with less contrast than at the Maquoketa-Galena surface.

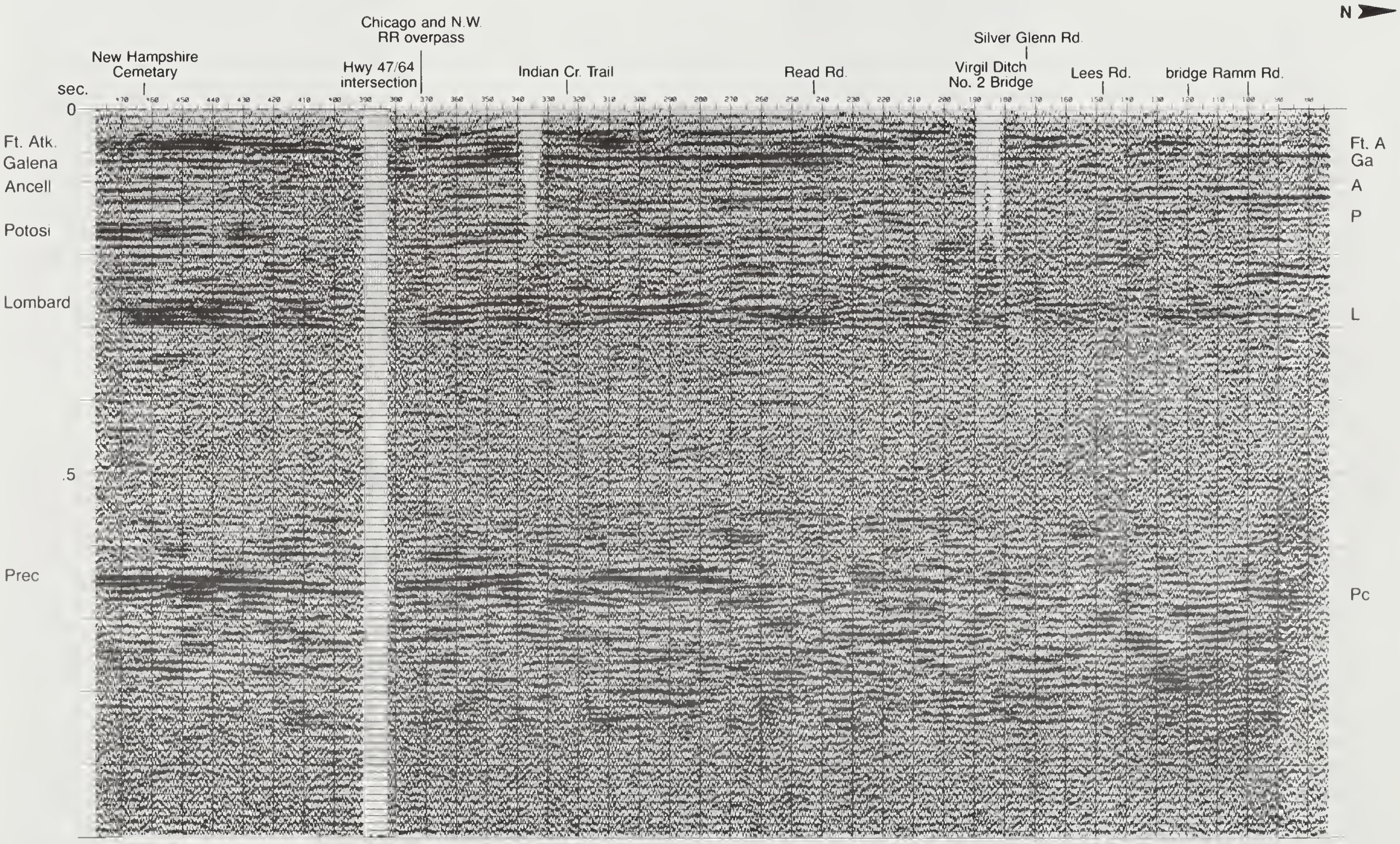


Figure 15 Lily Lake seismic reflection section.

Examination of sections D1, D2, and D3 (fig. 12) indicate that the combined thicknesses of the Galena and Platteville Groups do not vary appreciably along the entire length of the Dauberman Road line. This fact is corroborated by the combined thicknesses (332 and 325 feet, respectively) of these groups in test holes SSC-1 and SSC-3 near the ends of this line. A southern component of dip appears to be on the rocks comprising of these groups along the Dauberman Road line. The dip is corroborated by the elevations of the tops (562 and 469 feet above mean sea level, respectively) and bottoms (230 and 144 feet above mean sea level, respectively) of these Groups in test holes SSC-1 and SSC-3. Some of the decrease in elevation of the rocks of the Galena and Platteville Groups between the north and south ends of the Dauberman Road line is the result of a small normal fault, downthrown to the south between shot points 840 and 850 on section D2 (figs. 1 and 12).

The next reflection on sections D1, D2, and D3, in order of increasing two-way travel time, corresponds to the unconformity at the base of the Ancell Group (fig. 2). In the study area, the St. Peter Sandstone may rest unconformably on rocks as young as the Shakopee Dolomite of the Prairie du Chien Group (Lower Ordovician) and as old as the Franconia Sandstone Formation (Upper Cambrian) (Buschbach 1964). Test holes SSC-1 and SSC-3 at the north and south ends of the Dauberman Road line encountered the Eminence Dolomite (Lower Cambrian) and the Oneota Dolomite, respectively, below the St. Peter. The quality of the reflection emanating from this unconformity is inconsistent. In some places, the reflection is strong and coherent, indicating a sharply defined surface where the St. Peter, resting on unweathered carbonates, provides a sizeable acoustic impedance contrast. In other places, where the reflection becomes weak and incoherent, the St. Peter may be resting on rubble and/or formations with similar acoustic properties.

Along the Dauberman Road line, the exact location where rocks of the Prairie du Chien Group terminate on the subjacent Eminence Formation is difficult to determine. However, the northerly dipping reflection at shot point 1350 on section D3 (figs. 1 and 12), which apparently corresponds to the top of the Oneota Formation, together with cycle terminations farther north at shot points 1050 and 920, are indicative of the northernmost extent of the Prairie du Chien Group. Due to the unconformity at its base, the thickness of the Ancell Group in the study area varies. This is also the case along the Dauberman Road line.

Below the sub-St. Peter unconformity were several significant reflections in Cambrian strata. Near 0.220 second at the north end of section D1 (figs. 1 and 12) is a reflection corresponding to the contact between the Potosi Dolomite and the Franconian Sandstone. This reflection, which exhibits negative polarity, can be followed to the south well into section D3 (fig. 12), where it becomes discontinuous. At approximately 0.295 second at the north end of section D1 is a strong reflection that corresponds to the top of the Lombard Dolomite Member of the Eau Claire Formation. This reflection could be followed easily on most of sections D1, D2, and D3, although it diminished in strength near the south end of the section D3 (fig. 12). The top of the Lombard along the Dauberman Road line dips slightly to the south.

In addition to the previously mentioned small normal fault near shot point 850 in section D2 (figs. 1 and 12), a second small normal fault that cuts strata older than the St. Peter appears to be near shot point 610 on section D3 (figs. 1 and 12). The only other structure of significance along the Dauberman Road line occurs between shot point 55 and 155 on Section D2 near the East-West Tollway (figs. 1 and 12), where strata older than the St. Peter appear to have been downwarped significantly prior to deposition of the St. Peter.

Fermilab Seismic Reflection Line

The seismic reflection line at Fermilab in T39N R9E, Du Page County, Illinois (figs. 1 and 13) was shot from north to south in three segments, NAL-1, NAL-2, and NAL-3; lengths were 0.64, 0.43, and 2.08 miles, respectively. Because some segments overlapped, the total length of the line was approximately 3.1 miles.

Field parameters and the processing sequence for each segment of the Fermilab line are given in appendix B. Although the recorded length for each segment was 1.0 second, only 0.5 second was processed for segments NAL-1 and NAL-2 and only 0.6 second for segment NAL-3 (fig. 13). Like section 1 of the Dauberman Road seismic reflection line, the recorded lengths of the Fermilab sections were adequate for the intended purpose of this line, which was to examine the Ordovician strata in which the SSC experimental chambers were to be constructed. Like the Dauberman Road sections, the Fermilab sections do not contain information about the lower Mt. Simon and Precambrian rocks.

Surface elevations along the Fermilab seismic reflection line range from 730 to 750 feet above mean sea level with no discernible trend. Glacial drift thickness varies from 50 to 100 feet (Piskin and Bergstrom 1975). The bedrock surface is composed entirely of Silurian age-rocks (Willman et al. 1975; fig. 5).

The general quality of the seismic reflection data along the Fermilab line is fair. The quality is poor where noise levels from large pumps and compressors in the experimental area of Fermilab adversely affected the data. Reflections from the bedrock surface generally are inconsistent and difficult to follow. Test hole SSC-2 (fig. 6) near the south end of the Fermilab line shows that Silurian dolomite rests directly on Maquoketa Dolomite, and gradually changes to shale at the base of the Maquoketa. With no sharp lithologic break between the Silurian and Ordovician strata and a gradual decrease in seismic velocity through the transition from dolomite to shale within the Maquoketa (fig. 8), a strong reflection is not possible from the top of or within the Maquoketa Group. The reflection corresponding to the Maquoketa-Galena contact, although generally weak, can be followed across sections NAL-1, NAL-2, and NAL-3 (fig. 13). The reflection from the top of the Ancell Group is, for the most part, coherent and consistent. On the basis of information collected from test hole SSC-2, the Fermilab section NAL-3 shows St. Peter resting on Shakopee at the south end of the Fermilab line. The tops of the Franconia, Proviso, and Lombard Dolomite are easy to follow for a short distance, but farther to the south, although strong and coherent for short distances, they become discontinuous and difficult to follow. On section NAL-1 a noteworthy reflection emanates from the contact between the Galesville Sandstone Formation and the Proviso Siltstone Member of the Eau Claire Formation (the top of the Eau Claire). The upper part of the Proviso can be dolomitic (Buschbach 1964). This would be the case along section NAL-1, where a strong acoustic impedance contrast suggests a clastic-carbonate interface between the Galesville Sandstone and the Proviso Siltstone Member.

Along the Fermilab line most of the rocks show a slight southern component of dip. The thickness of the Galena-Platteville Groups, 221 feet in test hole SSC-2 near the south end of segment NAL-3, remains almost constant.

Between shot points 150 and 160 on section NAL-1 (figs. 1 and 13), the reflections associated with the Prairie du Chien Group and the Franconia Formation exhibit evidence of a small reverse fault upthrown on the north. Faulting cannot be traced into the overlying Ancell Group, nor can it be traced into the Franconia Formation for a significant distance. Deeper reflections exhibit evidence of upwarping in the lower strata south of the fault, indicative of a different, but nevertheless, consistent reaction to lateral compressive stresses.

Bristol Seismic Refraction Line

The Bristol seismic reflection line in T37N, R7E, Kendall County, Illinois (figs. 1 and 14) was shot in a north-south direction in two segments, BR-1 and BR-3. The segments are 0.96 and 0.60 mile long, respectively, for a total of 1.56 miles.

Field parameters and the processing sequence for each segment of the Bristol line are given in appendix C. The recorded length for each segment was 1.0 second, but only 0.5 second was processed for segment BR-1 and only 0.6 second for segment BR-3. The Bristol line was used to examine the continuity of the Galena-Platteville rocks in this area. Small-scale faulting in the Galena-Platteville was suspected on the basis of drilling and sampling in nearby test holes. Like the Dauberman Road and Fermilab seismic sections, the Bristol sections only provided informa-

tion about strata as deep as the upper part of the Mt. Simon. Although the same datum and subweathering velocity were used in processing the data of seismic sections BR-1 and BR-3 (fig. 14), a correction factor of 0.071 second was added to the datum correction of section BR-1. Thus reflections indicated on the BR-1 section will have two-way travel times, apparently 0.071 second greater than their counterparts in section BR-3.

Topographic relief on the earth's surface is small along the Bristol line, ranging from just over 660 feet to just below 650 feet above mean sea level. The thickness of the glacial drift along the Bristol line varies between 25 and 100 feet (Piskin and Bergstrom 1975). The bedrock surface is composed of carbonates of the Maquoketa Group at the north end of segment BR-1 and shales and carbonates of the Maquoketa Group elsewhere on this line (Willman et al. 1967) (fig. 5).

At a two-way travel time of approximately 0.190 second on seismic reflection section BR-1 (fig. 14), a reflection is interpreted as the top of the Maquoketa. This reflection becomes more coherent and continuous on section BR-3 (fig. 14) to the south where rocks of the Maquoketa Group form the bedrock surface. Between this reflection and the strong reflection associated with the top of the Galena (at about 0.220 second on section BR-1), short, discontinuous reflections, likely associated with the Ft. Atkinson Limestone (Maquoketa Group), can be seen. The reflection associated with the top of the Ancell Group is of lesser quality, but continuous and traceable. The reflection associated with the top of the Ancell Group occurs at about 0.250 second on section BR-1. At about 0.290 second on BR-1 is a reflection corresponding to the top of the Prairie du Chien Group (Ordovician). Rocks as young as the Shakopee Dolomite may form the surface of the unconformity at the top of this group (Buschbach 1964). Other notable reflections on BR-1 are associated with the tops of the Franconia Sandstone (0.330 second) and the Lombard Dolomite Member of the Eau Claire Formation (0.410 second). The reflection seen at about 0.330 second on the section BR-3 may correspond with the top of the Proviso Siltstone Member of the Eau Claire.

All reflections noted above generally are parallel, which is indicative of little or no thickening of strata along this short line. Evidence of a slight southern component of dip is on much of the strata along the Bristol line, but no evidence of faulting exists along the line.

Lily Lake Seismic Reflection Line

The Lily Lake seismic reflection line in T40 and 41N, R7E, Kane County, Illinois was shot in a north-south direction along Highway 47 through the town of Lily Lake (figs. 1 and 15). The line was approximately 4.22 miles long.

Field parameters and the processing sequence for this line are given in appendix D. Significant changes made on the Lily Lake line included dynamite (0.33 to 1.00 lb.) as the energy source and a recorded length of 2.0 seconds. Processing length was 1.0 second, enough time to include information about Precambrian rocks. This line was shot to examine the shallow Ordovician targets associated with the construction of the SSC tunnel and to determine the presence or absence of large-scale basement faulting in this region, which had been suggested by McGinnis (1966) primarily on the basis of interpretations of potential field data. The 1.0-second length of the seismic reflection section LL-1 (fig. 15) was adequate for both purposes.

Surface elevations on the Lily Lake line range from just over 1,010 feet above mean sea level at the northern end to about 880 feet above mean sea level near its southern end. The thickness of the glacial drift under the Lily Lake line is approximately 200 feet (Piskin and Bergstrom 1975). The bedrock surface along this line is composed entirely of rocks belonging to the Maquoketa Group (Willman et al. 1967; fig. 5).

The quality of the seismic reflection data on the Lily Lake line generally is good. Near the top of the LL-1 section (fig. 15), a strong reflection between 0.040 and 0.050 second likely corresponds to the Ft. Atkinson Limestone of the Maquoketa Group (Ordovician). In some places, the Ft. Atkinson Limestone appears to form the bedrock surface. Where it does not, a shallower reflection above it appears to be associated with the bedrock surface, perhaps composed of younger Brainard Formation shales. At 0.070 second is a strong reflection associated with the top of the

Galena. At 0.035 to 0.40 second below the top of the Galena reflection is a weaker but continuous reflection corresponding to the top of the Ancell Group. The parallelism of these latter two reflections indicates the uniform thickness of the Galena-Platteville Group along LL-1. A slight southern component of dip is on rocks of the Galena-Platteville Group on the Lily Lake line. At about 0.165 second at the southern end of section LL-1, a strong reflection is associated with the sub-St. Peter contact. This reflection likely emanates from the St. Peter resting on the Potosi Dolomite, but a deep hole at St. Charles, Illinois, about ten miles east of the southern end of the LL-1 line, encountered the Franconia Sandstone below the St. Peter (Buschbach 1964). Where the reflection from this surface is strong, the Potosi is likely present at the surface of the unconformity. Where the reflection is weak, the Franconia, which has less acoustic impedance than the Potosi, is present, or perhaps the Potosi is present, but with a rubble zone between it and the overlying St. Peter (Buschbach 1964). The very strong reflection at about 0.270 second corresponds to the top of the Lombard Dolomite. Along this line, the Lombard appears to be about 200 feet thick and flat lying. Below the Lombard reflection, the seismic section appears devoid of continuous reflections down to 0.640 seconds. This void corresponds to the predominately clastic rocks of the lower Eau Claire and Mt. Simon Formations. Occasionally, weak, short reflections occur near the base of the Mt. Simon, probably because of weak bedding or zones of especially dense cementation.

The basement surface, indicated by the strong reflection at about 0.640 second, also appears relatively flat lying along the Lily Lake line. Within the basement rocks no evidence of the large-scale basement faulting suggested by McGinnis (1966) exists.

Conclusions

The high-resolution seismic reflection profiling at four discrete locations around the proposed SSC ring proved to be viable in answering questions about the stratigraphy and structural geology at those locations, as well as providing significant insight into the geologic history of northeastern Illinois. The seismic reflection profiling provided considerably more information than previous geological and geotechnical studies, which relied on drill holes and downhole logging.

With the exception of a few interpreted minor faults, carbonate rocks of the Galena and Platteville Groups are relatively flat lying and uniform in thickness and lithology. This consistent stratigraphic relationship was desirable along the Dauberman Road and Fermilab lines (figs. 1, 12, and 13) where the chambers of the proposed SSC were to be located.

The seismic reflection sections near Bristol (figs. 1 and 14) showed no evidence of faulting in the rocks extending from the bedrock surface to the upper Cambrian. The results of previous test drilling and geologic mapping suggested the possibility of small-scale faulting in the Bristol area.

The Lily Lake seismic reflection section (figs. 1 and 15), which showed a strong, continuous reflection at the basement surface and provided information about basement rocks, did not show evidence of large-scale basement faulting interpreted from potential field data by McGinnis (1966).

A downwarping of strata below the St. Peter Sandstone (fig. 12) and a small reverse fault that cuts strata from the top of the Prairie du Chien Group down to the top of the Franconia Sandstone (fig. 13), are indicative of a compressive event across the study area prior to the deposition of the St. Peter.

A zone of small, parallel, high-angle normal faults that extend from the bedrock surface well into the Cambrian strata (fig. 12) is indicative of a tensional event younger than the Silurian Maquoketa rocks comprising the bedrock surface.

The seismic reflection sections were particularly useful in examining the deeper rocks of the study area because of the paucity of deep drill holes. The nature of the unconformable surface at the base of the Ancell Group can be observed on sections from all four seismic reflection lines (figs. 12, 13, 14, and 15). The basement surface on the Lily Lake seismic section (fig. 15) yields a reflection as strong and continuous as anywhere else in the state.

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Appendix A Dauberman Road Field Parameters and Processing Sequence

Segment D-1

Field Parameters

Recording instruments	DFSV
Record length	1.0 sec
Sample rate	.5 ms
Tape format	SEGB
Number of channels	72
Energy source	Airgun
Source interval	27.5 ft
Receiver type	Hydrophone P44
Receivers per group	1
Standard configuration	Split spread
Feet 1017.5-27.5 Sp	27.5-1017.5 feet
Recorded by	Walker Geophysical Co.
Date recorded	12/86-2/87

Processing Sequence

1. Demultiplex and QC display
2. Spherical divergence and gain recovery
3. Trace editing
4. Deconvolution type: band limited
   - No. of gates — 1
   - Design type — average autocorrelation
   - Frequency — 70-300 Hz
   - Operator length — 51 ms
   - White noise — 50% outside, 0% inside
5. Source and receiver datum correction
   - Datum — 830 ft
   - VR — 6500 ft/sec
6. Common depth point gather
7. Velocity analysis via Digicon's Velfan
8. Brute stack
9. Residual static correction
10. Velocity analysis via Digicon's Velfan
11. Residual static correction
12. Normal moveout correction
13. Mute
14. Trace equalization
15. Common depth point stack 36 fold
16. Signal to noise enhancement (TAU-P method)
17. Digital filter type: bandpass

Frequency	Time
90-200 Hz	0.000 sec
80-180 Hz	0.250 sec
70-160 Hz	0.500 sec

18. Trace equalization
19. Film display
    Polarity convention

Segment D-2

Field Parameters

Recording instruments	DFSV
Record length	1.0 sec
Sample rate	.5 ms
Tape format	SEGB
Number of channels	72
Energy source	Airgun
Source interval	27.5 ft
Receiver type	Hydrophone P44
Receivers per group	1
Standard configuration	Split spread
Feet 1017.5-27.5 Sp	27.5-1017.5 feet
Recorded by	Walker Geophysical Co.
Date recorded	12/86-2/87

Processing Sequence

1. Demultiplex and QC display
2. Spherical divergence and gain recovery
3. Trace editing
4. Deconvolution type: band limited
   - No. of gates — 1
   - Design type — average autocorrelation
   - Frequency — 70-300 Hz
   - Operator length — 51 ms
   - White noise — 50% outside 0% inside
5. Source and receiver datum correction
   - Datum — floating
   - VR — 6500 ft/sec
6. Common depth point gather
7. Velocity analysis via Digicon's Velfan
8. Brute stack
9. Residual static correction
10. Velocity analysis via Digicon's Velfan
11. Residual static correction
12. Normal moveout correction
13. Mute
14. Trace equalization
15. Common depth point stack 36 fold
16. Signal to noise enhancement (TAU-P method)
17. Digital filter type: bandpass

Frequency	Time
90-200 Hz	0.000 sec
80-180 Hz	0.250 sec
70-160 Hz	0.500 sec

18. Trace equalization
19. Final datum correction
    - Datum — 830 ft
    - VR — 6500 ft/sec
20. Film display
    Polarity convention

All data processing techniques used have maintained the recording polarity.
Normal polarity, a positive number, will be a filled peak; a negative number will be a trough (SEGY standard).
Processed by Digicon Geophysical Corp.
Houston Processing Center
Land Department

Segment D-3

Recording Parameters

Field acquisition	Walker Geophysical
Date recorded	Aug. 12-Sept. 28, 1987
Field reel numbers	1-11
No. of shots on line	1105
Recording instruments	DFSV
Recording filter	Low 90 high 512 Hz
Notch	Out
Record length	1 sec
Sample rate	.5 ms
No. of channels	72 (3x24)
Tape format	SEGB
Direction of shooting	N-S
Energy source	Airgun
Receiver	P44 10 Hz
Source interval	22 ft
Group interval	22 ft
Spread	792-22-Sp-22-770

Processing Sequence

1. Demultiplex
2. Minimum phase anti-alias filter application
3. Resample to 1 ms
4. Spherical divergence
5. Display field records
6. Trace editing
7. Source and receiver static correction
   - Datum: floating
   - VR: 6500 ft/sec
8. Common depth point gather
9. Initial velocity analysis
10. Residual statics application
11. Spectral equalization
    - Frequency: 70-250 Hz
12. Velocity analysis
13. Residual statics application
    - Frequency dependent
14. Normal moveout correction
15. Early mute
16. Trace equalization
17. Common depth point stack 36 fold
18. Deconvolution — Type: band limited
    - Gap length: 5 ms
    - Frequency: 70-250 Hz
    - White noise: 50% outside 0% inside
    - Design gate: 0.40-0.400 sec
19. Signal to noise enhancement
20. Digital filter — Type: bandpass

Time (sec)	Frequency (Hz)
0.0-0.07	80-240
0.095	80-200
0.350	70-180
0.600	70-140

21. Trace equalization
22. Final datum correction
    - Datum: 830 ft
    - VR: 6500 ft/sec
23. Film display
    - 30 TPI 20 IPS (1 in = 330 ft)
    - Polarity convention

Appendix B Fermilab Parameters and Processing Sequence

Segment NAL-1

Recording Parameters

Field acquisition	Walker Geophysical
Date recorded	Oct. 26-Nov. 28, 1987
Field reel numbers	13,14
No. of shots on line	153
Recording instruments	DFSV
Recording filter	Low 90 high 512 Hz
Notch	Out
Record length	1 sec
Sample rate	.5 ms
No. of channels	72 (3x24)
Tape format	SEGB
Direction of shooting	N-S
Energy source	Airgun
Receiver	P44 10 Hz
Source interval	22 ft
Group interval	22 ft
Spread	792-22-Sp-22-770

Processing Sequence

1. Demultiplex
2. Minimum phase anti-alias filter application
3. Resample to 1 ms
4. Spherical divergence
5. Display field records
6. Trace editing
7. Source and receiver static correction
   - Datum: 700 ft
   - VR: 6500 ft/sec
8. Common depth point gather
9. Initial velocity analysis
10. Residual statics application
11. Spectral equalization
    - Frequency: 70-250 Hz
12. Velocity analysis
13. Residual statics application
    - Frequency dependent
14. Normal moveout correction
15. Early mute
16. Trace equalization
17. Common depth point stack 36 fold
18. Deconvolution — Type: band limited
    - Gap length: 5 ms.
    - Frequency: 70-250 Hz
    - White noise: 100% outside 0% inside
    - Design gate: 0.080-0.400 sec
19. Signal to noise enhancement
20. Digital filter — Type: bandpass

Time (sec)	Frequency (Hz)
0.0-0.07	80-240
0.095	80-200
0.350	70-180
0.600	70-140

21. Trace equalization
22. Film display
    - 30 TPI 20 IPS (1 in = 330 ft)
    - Polarity convention

Segment NAL-2

Recording Parameters

Field acquisition	Walker Geophysical
Date recorded	Nov. 22, 1987
Field reel numbers	17
No. of shots on line	104
Recording instruments	DFSV
Recording filter	Low 90 high 512 Hz
Notch	Out
Record length	1 sec
Sample rate	.5 ms
No. of channels	72 (3x24)
Tape format	SEGB
Direction of shooting	NW-SE
Energy source	Airgun
Receiver	P44 10 Hz
Source interval	22 ft
Group interval	22 ft
Spread	792-22-Sp-22-770

Processing Sequence

1. Demultiplex
2. Minimum phase anti-alias filter application
3. Resample to 1 ms
4. Spherical divergence
5. Display field records
6. Trace editing
7. Source and receiver static correction
   Datum 730 ft
   VR 6500 ft/sec
8. Deconvolution Type: Spiking
   Design gate Offset Gate
   0 50 ms - 400 ms
   1584 310 ms - 500 ms
9. Common depth point gather
10. Initial velocity analysis
11. Residual statics application
12. Secondary velocity analysis
13. Trim statics
14. Final velocity analysis
15. Residual statics application
    Frequency dependent
16. Normal moveout correction
17. Early mute
18. Trace equalization
19. Common depth point stack 36 fold
20. Deconvolution Type: band limited
    Gap length 6 ms
    Frequency 70-250 Hz
    White noise 100% outside 0% inside
    Design gate 0.20-0.340 sec
21. Signal to noise enhancement
22. Digital filter Type: bandpass
    Time (sec) Frequency (Hz)
    0.0-0.07 80-240
    0.095 80-200
    0.350 70-180
    0.500 70-140
23. Trace equalization
24. Final datum correction
    Datum 700 ft
    VR 6500 ft/sec
25. Film display
    30 TPI 20 IPS (1 in = 330 ft)
    Polarity convention

Segment NAL-3

Recording Parameters

Field acquisition	Walker Geophysical
Date recorded	Dec. 5, 1987-Jan. 30, 1988
Field reel numbers	18-24
No. of shots on line	494
Recording instruments	DFSV
Recording filter	Low 90 high 512 Hz
Notch	Out
Record length	1 sec
Sample rate	.5 ms
No. of channels	72 (3x24) and 96 (4x24)
Tape format	SEGB
Direction of shooting	NNE-SSW
Energy source	Airgun
Receiver	P44 10 Hz
Source interval	22 ft
Group interval	22 ft
72 channel spread	792-22-Sp-22-770
96 channel spread	1056-22-Sp-22-1056

Processing Sequence

1. Demultiplex
2. Minimum phase anti-alias filter application
3. Resample to 1 ms
4. Spherical divergence
5. Display field records
6. Trace editing
7. Source and receiver static correction
   Datum 700 ft
   VR 6500 ft/sec
8. Deconvolution Type: Spiking
   Design gate Offset Gate
   0 50 ms - 400 ms
   1584 310 ms - 500 ms
9. Common depth point gather
10. Initial velocity analysis
11. Residual statics application
12. Secondary velocity analysis
13. Trim statics
14. Final velocity analysis
15. Residual statics application
    Frequency dependent
16. Normal moveout correction
17. Early mute
18. Trace equalization
19. Common depth point stack 36 & 48 fold
20. Deconvolution Type: band limited
    Gap length 6 ms
    Frequency 70-250 Hz
    White noise 100% outside 0% inside
    Design gate 0.20-0.340 sec
21. Signal to noise enhancement
22. Digital filter Type: bandpass
    Time (sec) Frequency (Hz)
    0.0-0.07 80-240
    0.095 80-200
    0.350 70-180
    0.500 70-140
23. Trace equalization
24. Film display
    30 TPI 20 IPS (1 in = 330 ft)
    Polarity convention

Appendix C Bristol Field Parameters and Processing Sequence

Segment BR-1

Field Parameters

Recording instruments	DFSV
Recording filter	90/36 - 512/72 (Hz/DB/Oct) Notch out
Record length	0.5 sec
Sample rate	.5 ms
Number of channels	3 x 24
Energy source	Airgun
Source interval	22 ft
Source depth	9 ft
Pops/S. P.	3
Gun size	10 C. I.
Receiver type	Hydrophone - P44 (10 Hz)
Receiver interval	22 ft
Receivers per group	1
Standard configuration	814-220 ft - Sp -220-814 ft
Direction of shooting	North to south
Recorded by	Walker Geophysical Co.
Recorded for	Illinois State Geological Survey
Date recorded	May 17-20, 1988

Processing Sequence

Processing length	.5 sec
Sample rate	1 ms

1. Demultiplex and QC display
2. Resample .5 to 1 ms
3. Spherical divergence and gain recovery
4. Trace editing
5. Deconvolution type: band limited
   - No. of gates: 1
   - Design type: average autocorrelation
   - Frequency: 60-320 Hz
   - Operator length: 51 ms
   - White noise: 50% outside 0% inside
6. Source and receiver datum correction
   - Datum: 600 ft
   - VR: 6500 ft/sec
7. Common depth point gather
8. Initial velocity analysis
9. Residual statics
10. Final velocity analysis
11. Normal moveout correction
12. Mute
13. Time variant scaling
14. Common depth point stack
15. Datum correction (+71 ms.)
   - Datum: 830 ft
   - VR: 6500 ft/sec
16. Spectral enhancement 60 - 200 Hz
17. Digital filter type: bandpass
   - Frequency: 60-200 Hz — Time: 0.0 - 0.5 sec
18. TAU-P domain signal enhancement
19. Time variant scaling

Segment BR-3

Recording Parameters

Instruments

Type	DFS V	Sample Interval	.5 ms
Format	SEG B	Record length	1 sec
Gain control	IFP	Filter	90/36-360/72 Hz

Source

Type	Airgun		
Interval	22 ft	Direction shot	?

Cable

Channels	72 (3 x 24)	Interval	22 ft
Geophone type	P44	Geophone Freq	10 Hz
Array	Inline	Spacing	unknown
Geophones/stat	unknown		

Processing Sequence

1. Daturm elevation 830 ft
2. Subweathering velocity 6500 ft/sec.
3. Date processed June 1988
4. Demultiplex
5.Shot and trace edit
6. Gain recovery
7. Common midpoint sort
8. Datum statics
   Correction to floating datum
9. Initial velocity analysis
10. Surface consistent residual statics
11. Final velocity analysis
12. Normal moveout removal
13. Mute
14 Amplitude equalization
15 Datum statics
   Correction to datum
16. 3600% stack
17. Predictive deconvolution
   - Operator length: 50 ms
   - Prediction lag: 10 ms
   - Design window: 100-500 ms
18. Signal enhancement
19. Wave equation migration
20. Bandpass filter 80 - 192 Hz
22. Automatic gain control 200 ms
23. Display
   - 20 tr/in: 20 in/s
   - Polarity: Black peaks are positive

Appendix D Lily Lake Field Parameters and Processing Sequence

Field Parameters

Recording instruments	DFSV
Recording filter	90/36 - 360/72 (Hz/DB/Oct) Notch out
Record length	2.0 sec
Sample rate	1 ms
Number of channels	56
Energy source	Dynamite
Source interval	55 ft
Source depth	24 ft
Charge size	.33 to 1 lb.
Receiver type	Hydrophone - P44 (10 Hz)
Receiver interval	55 ft
Receivers per group	1
Standard configuration	SP - Ch. #1 - Ch. #5 0 - 55 - 3080 ft
Direction of shooting	North to south
Recorded by	Walker Geophysical Co.
Recorded for	Illinois State Geological Survey
Date recorded	March 16-19, 1986

Processing Sequence

Processing length 1 sec
Sample rate 2 ms

1. Demultiplex and QC display
2. Resample 1 to 2 ms
3. Spherical divergence and gain recovery
4. Trace editing
5. Deconvolution type: band limited
   - No. of gates 1
   - Design type average autocorrelation
   - Frequency 70-250 Hz
   - Operator length 81 ms
   - White noise 50% outside 0% inside
6. Source and receiver datum correction
   - Datum 830 ft
   - VR 6500 ft/sec
7. Common depth point gather
8. Initial velocity analysis
9. Residual statics
10. Final velocity analysis
11. Normal moveout correction
12. Mute
13. Residual statics
14. Time variant scaling
15. Common depth point stack
16. Spectral enhancement
    50-150 Hz
17. Digital filter type: bandpass
    - Frequency Time
    - 50-150 Hz 0.0-1.0 sec
18. TAU-P domain signal enhancement
19. Time variant scaling

II Seismic Refraction Profiling

Figure 1 Index map--location of seismic refraction profiles.

Introduction

More than 80 line-miles of seismic refraction data were gathered in Kane, Kendall, Du Page, and Will Counties, Illinois (fig. 1) to define the geologic framework of the near-surface deposits in the proposed site for the Superconducting Super Collider (SSC). The results of this seismic refraction survey provided information relevant not only to the construction of the SSC tunnel and the location of its attendant vertical service shafts, but also to other future construction and to evaluation of groundwater, aggregate (crushed stone), and sand and gravel resources in the region.

The results of the seismic refraction survey include information on compressional wave velocities of the glacial drift and rocks in the bedrock surface (appendix A), which permit inferences to be made concerning the lithologic character of the glacial drift and the bedrock surface. Low velocities of the glacial drift may be indicative of sand and gravel deposits; higher velocities may be indicative of till. In an area where rocks that constitute the bedrock surface have a uniform lithology, lower velocities likely correspond to pronounced weathering and/or fracturing. Fractures in the upper bedrock often serve as conduits for transmitting sizeable quantities of groundwater in this region.

Table 1 Length of cable and geophone intervals for estimated depth to bedrock in the study area.

Cable length (ft)	Geophone interval (ft)	Estimated depth to bedrock (ft)
300	25	<30
600	50	30-150
1200	100	150-300

The results of the seismic refraction survey also include drift thickness or depth-to-bedrock values (appendix A). Together with information from existing discrete drill holes, the depth-to-bedrock values have been used to construct an improved bedrock topography map and delineate buried bedrock valleys. When filled with coarse-grained glacial deposits, the bedrock valleys are often sites of shallow groundwater supplies.

Seismic Refraction Method

In the seismic refraction method, the time between the initiation of seismic waves by an explosion or some other energy source and the first disturbances indicated by a geophone at some measured distances from the energy source (shot point) are observed. The first disturbances or arrivals correspond to the onset of compressional waves, the fastest traveling waves. According to Fermat's principle, the waves that cause the first disturbances are the ones that have traveled the minimum time path between the shot point and the geophones. By observing first arrivals for several shot-to-geophone distances, a time-distance plot can be constructed.

The time-distance plot can be analyzed by comparing the variation of minimum time paths with distance. Deductions can be made about the nature and depth of the elastic discontinuities (velocity discontinuities) required to account for the observed time-distance relationships. Elastic discontinuities then may be interpreted to define the nature, depth, and orientation of geologic units below the earth's surface (Nettleton, 1940).

Successful application of the seismic refraction method requires that the compressional wave velocities of the geologic units of interest increase monotonically with depth. This requirement was met in the SSC study area, where there were essentially three shallow geologic units of interest:

- the so-called weathered layer at the earth's surface, which is generally quite thin and has a relatively low velocity;
- the layer of unconsolidated deposits, consisting of glacial till or sand and gravel, which has a higher velocity; and
- the bedrock, which has a still higher velocity, even where it is weathered and/or fractured.

Difficulties arise using the seismic refraction method when a velocity inversion exists at depth, that is, when a geologic unit has a velocity less than that of the overlying unit. This situation commonly occurs in bedrock valleys where compact glacial tills may overlie the loose, valley-fill sands and gravels.

The low velocity unit is called the hidden layer because it is not apparent on time-distance plots of first arrivals. Straightforward application of analytical interpretive techniques, which assume monotonically increasing velocities with depth, will yield erroneously excessive depths to all elastic discontinuities below the hidden layer. In the case of a bedrock valley containing a unit of thick basal sand and gravel overlain by a compact till unit, the calculated depth to the valley floor will be greater than it is in reality. This means that the thalwegs of such bedrock valleys will be exaggerated and, therefore, more readily discerned; but accurate determination of depth to the valley floor and thickness of the hidden sand and gravel unit requires reference to the nearest drill holes that penetrate bedrock.

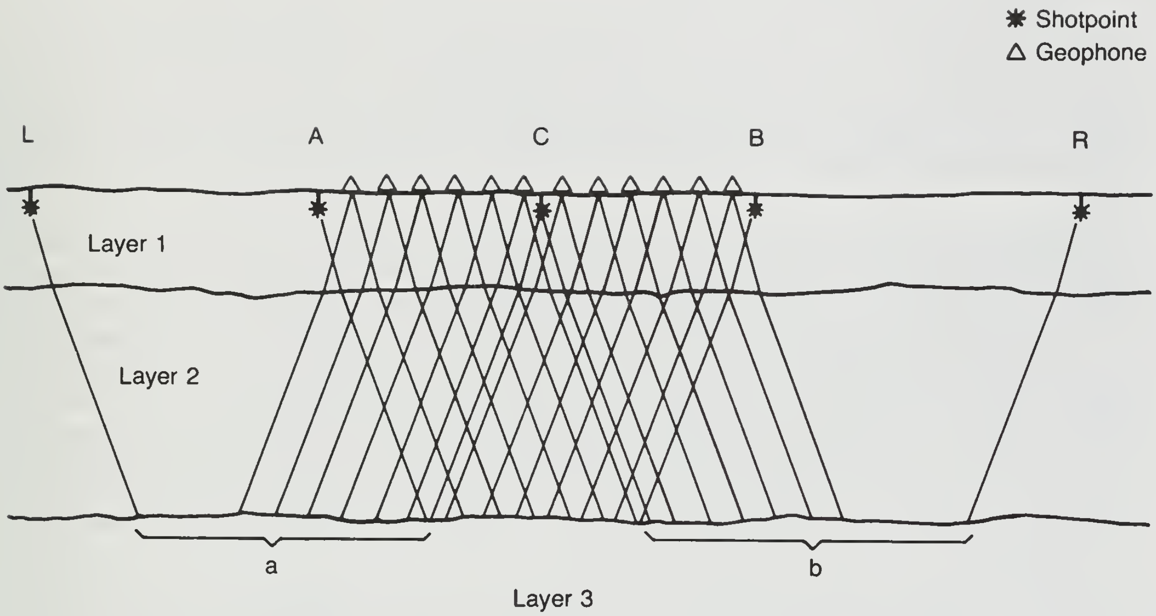


Figure 2 Shot and geophone arrays used with FRAC and SIPT programs

Equipment

Seismic refraction data were acquired using two multichannel signal-enhancement seismographs (EG&G Geometrics models ES-2415F and ES-1225) from the Illinois State Geological Survey. The 24-channel ES-2415F was used for most of the data acquisition. The 12-channel ES-1225, which is lighter and more portable, was used when it was necessary to hand-carry a seismograph to a field site. Mark Products 14 Hz vertical component geophones were used for detecting first arrivals.

Field Procedures

To obtain optimum results from shallow refraction surveying, it is necessary to choose appropriate shot and geophone arrays. These choices depend primarily on the layering parameters (velocities and thicknesses) of the near-surface materials and depth to the lowest refracting interface of interest. It is also important that the shot and geophone arrays are compatible with computer programs for processing and interpreting the data.

In this study, the lowest refracting interface of interest was the glacial drift-bedrock contact. Estimates of the depth to this interface and the layering parameters of the near surface materials were made from drill hole information and results of previous seismic refraction work.

Table 1 summarizes cable length and geophone intervals used for the estimated depth to bedrock throughout the study area.

The computer programs, FRAC and SIPT-1, used for processing and interpreting the data gathered in this survey, were compatible with the shot and geophone arrays shown in figure 2.

Dynamite charges, detonated in holes 4 to 5 feet deep, were the energy sources employed in most of the seismic refraction surveying. The size of the charges ranged from as small as 1/6 pound to as large as 1 pound, depending on the character of the unconsolidated, near-surface deposits and the estimated depth to bedrock. Where utilities and other cultural obstructions prevented the use of dynamite, a self-propelled, drop-hammer, pavement-breaking machine was used as a "thumper" source. Because the thumper does not provide nearly as much energy in a single blow as a dynamite blast, signals from several blows of the thumper had to be stacked before printing a seismic record.

Processing of Seismic Refraction Data

The data processing for the study consisted of assembling seismic refraction information, constructing an accurate index map to show locations of all seismic refraction profiles in the SSC study area (fig. 1), and preparing observed seismic refraction data for input into computer programs. The programs produce the layering parameter (velocity and thickness) solutions, which can be interpreted to define the nature, depth, and orientation of geologic units near the earth's surface.

First-arrival times were picked manually from printed records and plotted against distances from shot points to geophones. The least-squares line segments associated with discrete near-surface geologic units were fitted to the time-distance plots. Intercept times and slopes of the line segments were determined. The inverse of the slope of the line segment passing through the origin is the true velocity of the weathered surficial material. Where the weathered layer is relatively thin compared to geophone spacing, there may be no evidence of the weathered layer on the time-distance plot. In such cases a "true" velocity of 1,500 ft/sec was assigned to the weathered layer. The inverse of the slopes of the other two line segments are apparent velocities of the layer of unconsolidated deposits and the bedrock surface. The relationship of an apparent velocity to the true velocity of a geologic unit depends on the direction and amount of dip on the upper surface of a geologic unit under a seismic refraction profile.

The final step in preparing input to the seismic refraction computer programs, FRAC and SIPT-1, was determining shot point and geophone elevations from 7.5 minute topographic maps.

The FRAC program for inverting seismic refraction data follows a method set forth by Heiland (1940), which assumes that velocity inceases monotonically with depth and planar surfaces bound the near-surface geologic units of interest during the seismic refraction profile. Heiland's method requires reverse profiling, that is, first-arrival times from shots placed at both ends of the seismic refraction profile are employed. The input to the program includes shot elevation, intercept times, and velocities associated with both the forward and the reverse shots. As mentioned above, except for the weathered layer, the input velocities are apparent velocities. The output from this program includes depths to the tops of layers corresponding to geologic units under the shot points and the true velocity of each layer.

SIPT-1 (Seismic Interpretation Program Two) was used to process much of the seismic refraction data in this study. The program, originally developed by Scott et al. (1972) to run on mainframe computers, was modified later by Haeni (1986) for microcomputer use.

Like the FRAC program, the algorithm of the SIPT-1 program also assumes velocity increases monotonically with depth; but unlike the FRAC program, the algorithm of the SIPT-1 program assumes all layer boundaries are represented by a series of straight-line segments connected end-to-end beneath geophone locations and extended from one end of the seismic refraction profile to the other.

The SIPT-1 program is based on the delay-time method described by Pakiser and Black (1957), but it also uses an interactive ray-tracing technique developed by Scott et al. (1972) to minimize discrepancies between the measured and computed first-arrival times. The program requires data obtained by overlapping arrays of 12 geophones and locating shots at the ends and offset from the ends of the geophone arrays (fig. 2). The input to the program includes shot locations and elevations, geophone locations and elevations, and first-arrival times. The output from the SIPT-1 program includes true velocity of each layer, depths to the tops of each layer below each geophone along with the corresponding elevation, and ray-tracing data. The SIPT-1 program is especially useful in processing seismic refraction data obtained in regions where the earth's surface and/or the boundaries of the subsurface geologic units are topographically rough.

Results

Results of the seismic refraction survey in the study for the Superconducting Super Collider are given in appendix A. Along with information concerning the locations of the seismic refraction

profile, this appendix includes compressional wave velocities of the weathered layer, the subjacent layer of unconsolidated deposits, and the bedrock surface beneath the profiles. The primary value of the velocity data is that they allow inferences to be made concerning the lithologic character of the near-surface deposits. The velocity data also are valuable in defining those areas where a bedrock surface of a constant lithology has experienced considerable weathering and/or fracturing. Appendix A also includes the elevation of the earth's surface and depths to the top of the layer of unconsolidated deposits and to the bedrock surface beneath the end points of each seismic refraction profile.

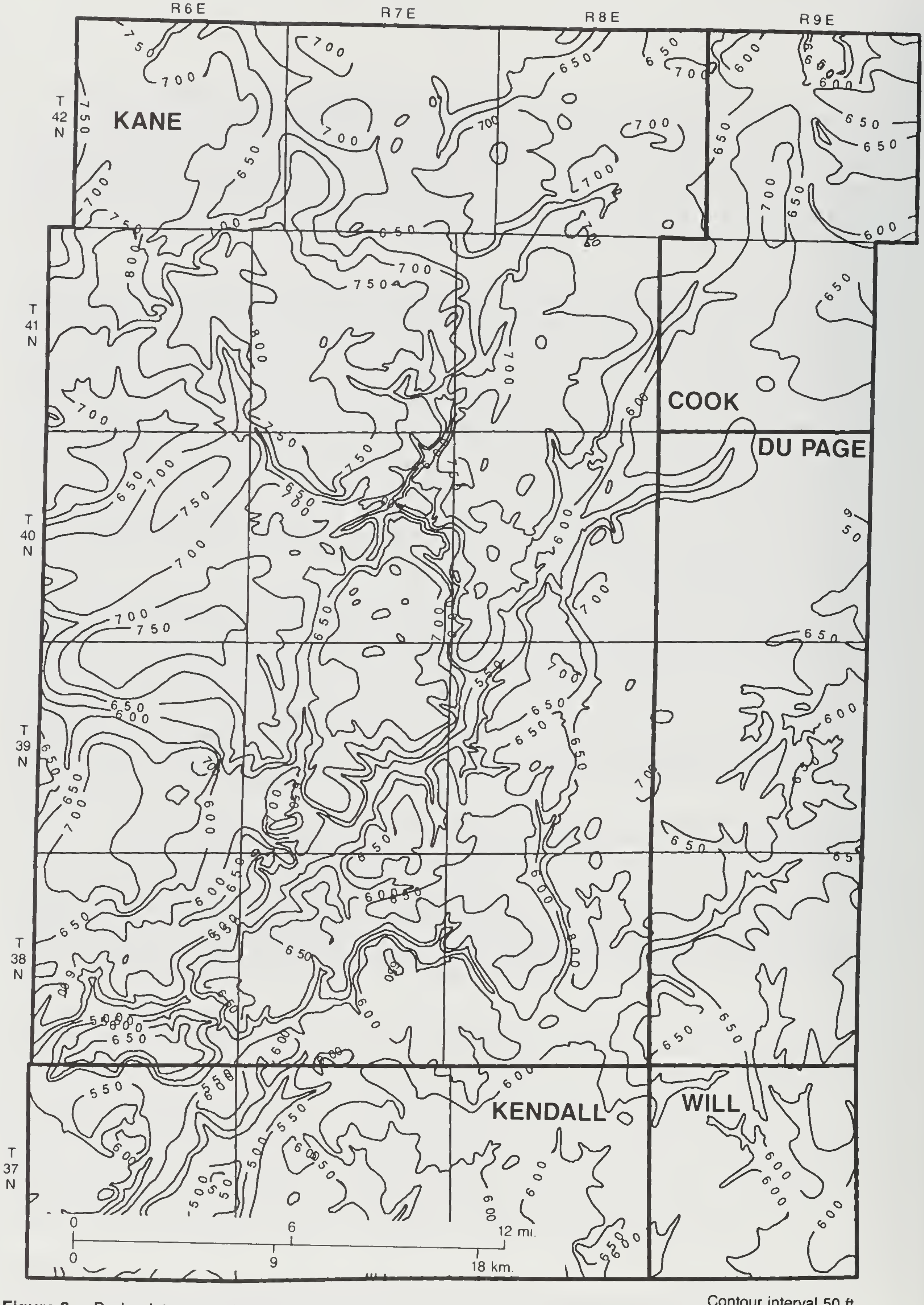
As mentioned above, a constant compressional wave velocity of 1,500 ft/sec was assigned to the thin weathered layer at the earth's surface. Velocities associated with the layer of unconsolidated deposits below the weathered layer and above the bedrock surface range from slightly less than 3,000 ft/sec to slightly more than 8,000 ft/sec. Velocities less than 4,500 ft/sec in the unconsolidated deposits commonly correspond to loose sands and gravels, whereas velocities greater than 4,500 ft/sec correspond to glacial tills. Velocities associated with the bedrock surface range from as low as 9,000 ft/sec to more than 20,000 ft/sec. Lower velocities for the bedrock surface correspond to clastic rocks and higher velocities correspond to carbonate rocks. However, weathering and/or fracturing of the bedrock may result in anomalously lower velocities. Some of the lower velocities associated with the intermediate layer of unconsolidated deposits may correspond to materials that make up the weathered layer and some of the higher velocities associated with the intermediate layer may correspond to rocks composing the bedrock surface. In such cases, information gathered from nearby boreholes can often help in assigning velocities to the proper geologic units.

Bedrock surface elevations vary considerably within the study area (fig. 3). Elevations as low as 381 feet and as high as 869 feet above mean sea level have been determined using the seismic refraction data. Glacial drift thickness in excess of 300 feet has been noted.

Summary

More than 80 miles of seismic refraction profiling provided additional information to the database on the near-surface geologic framework of northeastern Illinois. This database is important in solving a number of local and regional geological, hydrological, and engineering problems.

An updated bedrock topography map (fig. 3), which incorporates information gathered in this study, has relevance not only to future construction, but also to the location of shallow groundwater and aggregate resources. Buried bedrock valleys often contain large quantities of sand and gravel; thus, these valleys often serve as conduits for shallow groundwater supplies. The location of these shallow aquifers also is an important consideration in the location of waste disposal sites. The additional information provided by the seismic refraction surveying on depth to bedrock and the nature of both unconsolidated deposits and the bedrock surface (inferred from velocity data) will be useful in siting future sand and gravel pits and quarrying operations.



Contour interval 50 ft

Figure 3 Bedrock topography map of study area.

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Appendix A Results of Seismic Refraction Profiling

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	10	KANE	34	39N	6E	200SL, 50EL	1500SL, 50EL	1300	S-N	1500	5993	13319	13.8	12.1	133	171	759	765	626	594	BIG.ROCK
6/86	11	KANE	34	39N	6E	1000SL, 50EL	2300SL, 50EL	1300	S-N	1500	5993	13319	11.5	15.5	159	116	770	762	611	647	BIG.ROCK
6/86	12	KANE	34	39N	6E	2350NL, 50EL	1050NL, 50EL	1300	S-N	1500	6131	12407	9.8	6.8	86.7	84.3	755	755	668	671	BIG.ROCK
6/86	13	KANE	34	39N	6E	1350NL, 50EL	50NL, 50EL	1300	S-N	1500	6131	12407	10.4	9.8	90.8	83.0	755	758	664	675	BIG.ROCK
6/86	14	KANE	34.*27	39N	6E	350NL, 50EL	900SL, 50EL	1300	S-N	1500	6131	12407	7.4	8.3	82.5	71.3	758	758	676	687	BIG.ROCK
6/88	15	KANE	27	39N	6E	1050SL, 50EL	2350SL, 50EL	1300	S-N	1500	7511	13298	6.9	11.1	83.7	99.2	760	765	676	666	BIG.ROCK
6/86	16	KANE	27	39N	6E	2450SL, 50EL	3100SL, 50EL	650	S-N	1500	5949	14049	14.4	5.6	56.5	79.8	777	778	721	698	BIG.ROCK
6/86	17	KANE	27.*22	39N	6E	800NL, 50EL	500SL, 50EL	1300	S-N	1500	5300	12851	11.1	13.3	80.0	65.0	785	790	705	725	BIG.ROCK
6/86	18	KANE	22	39N	6E	150EL, 1400SL	975EL, 2400SL	1300	W-E	1500	5967	13936	7.6	22.4	64.7	22.4	800	790	735	768	BIG.ROCK
6/86	19	KANE	22	39N	6E	550EL, 1900SL	1350EL, 2900SL	1300	W-E	1500	5967	13936	2.8	8.3	58.2	60.4	803	795	745	735	BIG.ROCK
6/88	20	KANE	10	39N	6E	138NL, 50EL	1438NL, 50EL	1300	S-N	1500	6082	13812	8.4	4.8	175	167	844	840	669	673	MAPLE.PARK
6/86	21	KANE	10	39N	6E	2150SL, 50EL	850SL, 50EL	1300	S-N	1500	5925	14440	10.2	6.1	160	152	824	830	664	678	BIG.ROCK
6/86	22	KANE	10.*15	39N	6E	1250SL, 50EL	50NL, 50EL	1300	S-N	1500	5925	14440	6.0	6.1	157	163	822	825	665	662	BIG.ROCK
6/86	24	KANE	15	39N	6E	600SL, 50EL	1900SL, 50EL	1300	S-N	1500	6068	12664	18.7	10.6	106	132	810	810	704	678	BIG.ROCK
6/86	25	KENDALL	6	37N	7E	1300WL, 25NL	1950WL, 25NL	650	W-E	1500	6210	19904	14.8	12.0	150	171	677	677	527	506	YORKVILLE
6/86	26	KENDALL	6	37N	7E	1750WL, 25NL	2400WL, 25NL	650	W-E	1500	6210	19904	11.2	13.8	176	184	677	677	502	493	YORKVILLE
6/86	29	KANE	33	38N	8E	2950WL, 2250SL	3600WL, 2250SL	650	W-E	1500	4975	12507	7.1	17.7	49.3	40.7	635	633	586	592	AURORA.SOUTH
6/86	30	KANE	11	39N	6E	68WL, 25NL	1368WL, 25NL	1300	W-E	1500	7188	13160	10.5	13.0	57.4	73.4	638	630	581	688	MAPLE.PARK
6/86	31	KANE	11	39N	6E	868WL, 25NL	2168WL, 25NL	1300	W-E	1500	6507	13056	7.7	17.4	141	157	845	845	704	696	MAPLE.PARK
6/86	32	KANE	11	39N	6E	1868WL, 25NL	3168WL, 25NL	1300	W-E	1500	6478	13247	6.7	8.7	156	111	850	838	694	727	MAPLE.PARK
6/86	33	KANE	11	39N	6E	2585EL, 25NL	1285EL, 25NL	1300	W-E	1500	5832	15600	1.6	3.5	167	89.4	842	837	675	748	MAPLE.PARK
6/86	34	KANE	36	40N	6E	1800NL, 1275WL	500NL, 1250WL	1300	S-N	1500	6092	12980	13.3	14.8	80.5	104	875	868	795	764	MAPLE.PARK
6/86	35	KANE	36	40N	6E	1750SL, 1275WL	3050SL, 1275WL	1300	S-N	1500	5988	14254	16.2	15.5	108	99.9	884	879	776	779	MAPLE.PARK
6/86	36	KANE	36.*25	40N	6E	1000NL, 1250WL	300SL, 1250WL	1300	S-N	1500	6092	12980	13.9	10.0	77.5	148	871	865	794	717	MAPLE.PARK
6/86	37	KANE	36.*25	40N	6E	200NL, 1250WL	1100SL, 1250WL	1300	S-N	1500	6092	12980	9.9	10.2	143	161	865	871	722	710	MAPLE.PARK
6/86	38	KANE	25	40N	6E	600SL, 1250WL	1900SL, 1250WL	1300	S-N	1500	6092	12980	7.0	7.8	162	170	868	865	706	695	MAPLE.PARK
6/86	39	KANE	36	40N	6E	2250SL, 1250WL	3550SL, 1250WL	1300	S-N	1500	5128	15346	12.2	11.1	89.5	90.2	879	875	790	785	MAPLE.PARK
6/86	40	KANE	25	40N	6E	1400SL, 1250WL	2700SL, 1250WL	1300	S-N	1500	6328	11719	11.4	8.6	118	157	865	873	747	716	MAPLE.PARK
6/86	41	KANE	25	40N	6E	2200SL, 1250WL	3500SL, 1250WL	1300	S-N	1500	6328	11719	11.7	7.1	137	154	870	870	733	716	MAPLE.PARK
6/86	42	KANE	35	40N	6E	1900NL, 2600WL	600NL, 2600WL	1300	S-N	1500	6455	13615	9.4	13.4	91.4	135	868	870	777	735	MAPLE.PARK
6/86	43	KANE	35.*26	40N	6E	1100NL, 2600WL	200SL, 2600WL	1300	S-N	1500	6455	13615	11.9	11.2	136	138	868	873	732	735	MAPLE.PARK
6/86	44	KANE	25	40N	6E	1900WL, 150NL	3050WL, 50NL	1300	W-E	1500	5737	13681	5.1	15.0	161	163	869	881	708	718	MAPLE.PARK.*ELBURN
6/86	45	KANE	25.*24	40N	6E	2650EL, 75NL	1350EL, 100SL	1300	W-E	1500	5737	13681	11.8	18.5	149	183	874	887	725	704	ELBURN
6/86	46	KANE	19	40N	7E	800WL, 200SL	2100WL, 275SL	1300	W-E	1500	6047	15077	16.4	24.1	192	206	910	910	718	704	ELBURN
6/86	47	KANE	2	39N	6E	83SL, 2550WL	1383SL, 2550WL	1300	S-N	1500	6284	13230	10.8	16.0	125	144	846	846	721	702	MAPLE.PARK
6/86	48	KANE	2	39N	6E	900SL, 2550WL	2100SL, 2550WL	1300	S-N	1500	6284	13230	11.3	10.1	121	130	846	851	725	721	MAPLE.PARK
6/86	49	KANE	2	39N	6E	2600NL, 2550WL	1300NL, 2550WL	1300	S-N	1500	5751	15423	3.2	11.6	150	133	850	865	700	732	MAPLE.PARK
6/86	50	KANE	3	38N	6E	881NL, 25EL	2181NL, 25EL	1300	S-N	1500	5886	16482	12.3	7.4	159	153	752	753	593	600	BIG.ROCK
6/86	51	KANE	3	38N	6E	1650NL, 25EL	2950NL, 25EL	1300	S-N	1500	5886	16482	11.7	11.7	150	166	752	751	603	585	BIG.ROCK
6/86	52	KANE	3	38N	6E	2450NL, 25EL	3750NL, 25EL	1300	S-N	1500	5886	16482	12.7	20.0	144	148	748	753	604	605	BIG.ROCK
6/88	53	KANE	3	38N	6E	1950SL, 25EL	650SL, 25EL	1300	S-N	1500	5886	16482	8.3	12.1	137	156	745	750	608	594	BIG.ROCK
6/86	54	KANE	11	38N	6E	58WL, 25SL	1358WL, 25SL	1300	W-E	1500	5369	18765	6.7	13.6	128	132	709	709	581	577	BIG.ROCK
6/86	55	KANE	11	38N	6E	958WL, 25SL	2258WL, 25SL	1300	W-E	1500	5369	18765	12.9	2.5	125	117	709	711	584	594	BIG.ROCK
6/86	56	KANE	11	38N	6E	3195WL, 25SL	4495WL, 25SL	1300	W-E	1500	6093	14124	15.0	14.1	70.8	89.3	709	706	638	617	BIG.ROCK
6/86	57	KANE	11.*12	38N	6E	1275EL, 25SL	25WL, 25SL	1300	W-E	1500	6093	14124	13.9	16.6	83.2	93.1	706	700	623	607	BIG.ROCK
6/86	58	KANE	2	38N	6E	325WL, 20SL	1625WL, 20WL	1300	W-E	1500	5645	18554	15.0	12.2	159	151	743	741	584	590	BIG.ROCK
6/86	59	KANE	2	38N	6E	1125WL, 20SL	2425WL, 20SL	1300	W-E	1500	5645	18554	7.4	15.0	152	137	740	734	588	597	BIG.ROCK
6/86	60	KANE	35	39N	6E	161WL, 20SL	1461WL, 20SL	1300	W-E	1500	5690	15630	6.6	8.3	156	179	760	760	604	581	BIG.ROCK
6/86	61	KANE	34	39N	6E	65EL, 20SL	1365EL, 20SL	1500	W-E	1500	6294	13636	10.0	6.4	138	162	769	760	631	598	BIG.ROCK
6/86	62	KENDALL	7	37N	7E	100NL, 20EL	1400NL, 20EL	1300	S-N	1500	6615	18046	17.4	7.7	145	155	657	647	512	492	YORKVILLE
6/86	63	KENDALL	4	37N	7E	500WL, 25NL	1150WL, 25NL	650	W-E	1500	5607	12878	6.4	18.2	70.1	18.2	658	657	588	639	YORKVILLE
6/86	64	KENDALL	4	37N	7E	750WL, 25NL	100WL, 25NL	650	W-E	1500	5607	12878	11.6	10.8	44.9	45.8	662	658	617	612	YORKVILLE
6/86	65	KENDALL	5	37N	7E	700EL, 25NL	2000EL, 25NL	1300	W-E	1500	5395	13094	17.9	12.3	106	73.3	670	669	564	596	YORKVILLE
6/86	66	KENDALL	5	37N	7E	1700EL, 25NL	3000EL, 25NL	1300	W-E	1500	5395	13094	20.0	10.5	88.7	95.0	675	669	586	574	YORKVILLE
6/88	67	KENDALL	5	37N	7E	2600WL, 25NL	1300WL, 25NL	1300	W-E	1500	5395	13094	28.4	16.2	92.9	89.5	673	673	580	584	YORKVILLE

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	68	KENDALL	5	37N	7E	300WL, 25NL	1600WL, 25NL	1300	W-E	1500	5395	13094	23.0	18.9	93.2	83.7	678	673	585	589	YORKVILLE
6/86	69	KENDALL	5.*6	37N	7E	600WL, 25NL	700EL, 25NL	1300	W-E	1500	5395	13094	24.8	24.6	112	103	685	675	574	572	YORKVILLE
6/86	70	KENDALL	6	37N	7E	400EL, 25NL	1700EL, 25NL	1300	W-E	1500	5996	16395	29.8	30.8	120	144	677	682	557	538	YORKVILLE
6/86	71	KENDALL	6	37N	7E	1500EL, 25NL	2800EL, 25NL	1300	W-E	1500	5996	16395	16.3	23.0	153	139	675	680	522	541	YORKVILLE
6/86	72	KENDALL	6	37N	7E	2400EL, 25NL	3700EL, 25NL	1300	W-E	1500	5996	16395	16.1	15.7	151	141	675	675	525	534	YORKVILLE
6/86	73	KENDALL	6	37N	7E	1300WL, 25NL	2600WL, 25NL	1300	W-E	1500	5996	16395	13.9	15.5	154	145	675	675	521	530	YORKVILLE
6/86	74	KANE	31	38N	7E	25SL, 1125WL	1325SL, 1450WL	1300	S-N	1500	6524	15140	17.1	18.8	125	157	677	679	553	522	YORKVILLE
6/86	75	KANE	31	38N	7E	900SL, 1350WL	2150SL, 1650WL	1300	S-N	1500	6524	15140	23.9	20.4	145	159	687	680	542	521	YORKVILLE
6/86	76	KANE	31	38N	7E	1900SL, 1600WL	3150SL, 1900WL	1300	S-N	1500	6524	15140	15.9	26.7	154	155	678	682	524	527	YORKVILLE
6/86	77	KENDALL	6	37N	7E	50NL, 1300WL	1250NL, 1050WL	1300	S-N	1500	5133	15661	12.0	8.3	141	135	677	677	537	542	YORKVILLE
6/86	78	KANE	32	38N	7E	850SL, 300WL	2150SL, 300WL	1300	S-N	1500	6115	13953	15.0	9.7	131	68.2	690	675	559	607	YORKVILLE
6/86	79	KANE	32	38N	7E	1700SL, 300WL	2000SL, 300WL	1300	S-N	1500	6115	13953	9.8	11.7	70.7	77.6	675	680	604	602	YORKVILLE
6/86	80	KANE	32	38N	7E	2500SL, 300WL	3800SL, 300WL	1300	S-N	1500	6115	13953	13.0	6.6	62.7	113	677	680	614	567	YORKVILLE
6/86	81	KANE	31	38N	7E	2600SL, 1750WL	3850SL, 2150WL	1300	S-N	1500	6524	15140	19.3	19.6	154	136	681	685	527	549	YORKVILLE
6/86	82	KANE	10	38N	6E	41NL, 25EL	1341NL, 25EL	1300	S-N	1500	5910	19342	8.1	7.5	114	185	734	743	620	558	BIG.ROCK
6/86	83	KANE	10	38N	6E	841NL, 25EL	2141NL, 25EL	1300	S-N	1500	6210	19276	15.3	5.9	136	140	709	720	573	581	BIG.ROCK
6/86	84	KANE	10	38N	6E	1741NL, 25EL	3041NL, 25EL	1300	S-N	1500	6210	19276	8.9	7.7	142	150	715	723	573	573	BIG.ROCK
6/86	85	KANE	10	38N	6E	2541NL, 25EL	3841NL, 25EL	1300	S-N	1500	6210	19276	6.9	9.4	148	152	723	730	575	578	BIG.ROCK
6/86	88	KANE	10	38N	6E	1960SL, 25EL	660SL, 25EL	1300	S-N	1500	6210	19276	8.5	7.6	155	169	725	737	570	568	BIG.ROCK
6/86	87	KANE	32.*31	38N	7E	250WL, 600NL	1050EL, 575NL	1300	W-E	1500	5766	13869	9.7	13.2	143	130	688	692	545	562	YORKVILLE
6/86	88	KENDALL	1	37N	7E	800EL, 1800NL	275EL, 1425NL	650	W-E	1500	6347	14222	12.3	14.1	63.7	45.3	662	662	598	617	AURORA.SOUTH
6/86	89	KANE	31	38N	7E	2200EL, 570NL	900EL, 575NL	1300	W-E	1500	5895	13312	16.5	12.9	51.6	140	688	685	636	545	YORKVILLE
6/86	90	KANE	31	38N	7E	2075WL, 550NL	775WL, 540NL	1300	W-E	1500	5854	15322	4.0	12.2	66.4	78.8	693	688	627	609	YORKVILLE
6/86	91	KANE	36	38N	6E	2325EL, 560NL	3625EL, 575NL	1300	W-E	1500	6250	13850	15.3	13.8	87.0	104	687	670	600	566	PLANO.*YORKVILLE
6/86	92	KANE	22	40N	7E	2450SL, 1300WL	1150SL, 1300WL	1300	S-N	1500	6085	13384	20.0	17.0	259	189	903	898	644	709	ELBURN
6/86	93	KANE	36	40N	6E	1150EL, 1800SL	520EL, 1880SL	650	W-E	1500	5966	14392	14.2	16.6	109	118	880	880	771	762	ELBURN
6/86	94	KANE	20	40N	8E	875SL, 1150EL	225SL, 1100EL	650	S-N	1500	5484	13636	4.1	16.9	98.5	68.3	768	760	670	692	GENEVA
6/86	95	KANE	20	40N	8E	925SL, 1150EL	1000SL, 1500EL	325	W-E	1500	5840	17195	17.9	13.1	68.1	89.5	760	755	692	666	GENEVA
6/86	96	KENDALL	6	37N	7E	1400WL, 2800SL	2675WL, 2525SL	1300	W-E	1500	5035	12961	38.2	23.6	38.2	118	680	682	642	564	YORKVILLE
6/86	97	KENDALL	6	37N	7E	2125WL, 2600SL	3400WL, 2300SL	1300	W-E	1500	5035	12961	20.9	12.6	108	147	680	675	572	528	YORKVILLE
6/86	98	KENDALL	6	37N	7E	1675EL, 2200SL	450EL, 1800SL	1300	W-E	1500	6772	16576	15.4	22.3	199	211	662	663	464	452	YORKVILLE
6/86	99	KENDALL	5	37N	7E	400WL, 1850SL	1675WL, 1200SL	1300	W-E	1500	5286	12327	13.6	20.6	107	78.1	666	670	559	592	YORKVILLE
6/86	100	KENDALL	5	37N	7E	1300WL, 1300SL	2550WL, 900SL	1300	W-E	1500	5286	12327	19.5	11.3	81.3	82.0	665	665	584	583	YORKVILLE
6/86	101	KENDALL	5	37N	7E	2150WL, 1050SL	3400WL, 625SL	1300	W-E	1500	5286	12327	11.7	13.4	64.6	63.9	667	663	602	599	YORKVILLE
6/86	102	KENDALL	5	37N	7E	1625EL, 550SL	375EL, 125SL	1300	W-E	1500	5286	12876	10.5	16.3	56.0	63.2	662	656	606	593	YORKVILLE
6/86	103	KENDALL	5.*9	37N	7E	825EL, 300SL	450WL, 150NL	1300	W-E	1500	5288	12876	5.2	0.2	71.3	72.3	656	650	585	578	YORKVILLE
6/86	104	KENDALL	9	37N	7E	1000WL, 375NL	1625WL, 550NL	650	W-E	1500	5180	13292	0.0	4.8	73.3	57.9	660	660	586	602	YORKVILLE
6/88	105	KENDALL	9	37N	7E	1450WL, 500NL	2075WL, 700NL	650	W-E	1500	5180	13292	7.2	5.8	46.0	61.9	660	660	614	598	YORKVILLE
6/86	106	KENDALL	9	37N	7E	1900WL, 650NL	2550WL, 850NL	650	W-E	1500	5180	13292	9.0	21.2	47.6	34.8	660	660	612	625	YORKVILLE
6/86	107	KENDALL	9	37N	7E	2400WL, 780NL	3050WL, 975NL	650	W-E	1500	5180	13292	26.5	12.3	29.1	12.3	660	660	631	648	YORKVILLE
6/86	108	KENDALL	11	37N	7E	525WL, 1650SL	1170WL, 1525SL	650	W-E	1500	6406	10321	4.5	9.2	4.5	41.1	650	650	646	609	YORKVILLE
6/86	109	KENDALL	11	37N	7E	950WL, 1550SL	1595WL, 1465SL	650	W-E	1500	6406	10321	12.4	7.8	27.9	32.5	650	650	622	618	YORKVILLE
6/86	110	KENDALL	11	37N	7E	1325WL, 1510SL	1970WL, 1400SL	650	W-E	1500	6406	10321	8.6	9.6	37.6	20.1	650	650	612	630	YORKVILLE
6/86	111	KENDALL	11	37N	7E	1750WL, 1425SL	2395WL, 1325SL	650	W-E	1500	6406	10321	9.2	15.7	23.6	23.7	650	650	626	626	YORKVILLE
6/86	112	KENDALL	11	37N	7E	2225WL, 1350SL	2870WL, 1225SL	650	W-E	1500	6406	10321	11.6	14.9	24.6	14.9	650	650	625	635	YORKVILLE
6/88	113	KENDALL	10	37N	7E	1950WL, 2800SL	1310WL, 3075SL	650	W-E	1500	5296	13074	4.5	8.6	58.4	31.1	652	652	594	621	YORKVILLE
6/86	114	KENDALL	10	37N	7E	1310WL, 3075SL	670WL, 3350SL	650	W-E	1500	5791	15090	3.1	6.2	50.7	61.6	652	652	601	590	YORKVILLE
6/86	115	KENDALL	10	37N	7E	670WL, 3350SL	100WL, 3600SL	650	W-E	1500	5921	13284	6.7	3.3	43.4	47.9	652	652	609	604	YORKVILLE
6/86	116	KENDALL	9	37N	7E	1400EL, 1250NL	760EL, 1425NL	650	W-E	1500	7541	16366	16.7	7.5	59.3	86.0	660	651	601	565	YORKVILLE
6/86	117	KENDALL	10	37N	7E	2150WL, 2700SL	2790WL, 2475SL	650	W-E	1500	7142	14577	8.4	5.6	52.7	57.1	650	650	597	593	YORKVILLE
6/86	118	KENDALL	10	37N	7E	2790WL, 2475SL	3430WL, 2225SL	650	W-E	1500	6666	15252	6.2	9.7	53.8	54.8	652	652	598	597	YORKVILLE
6/86	119	KENDALL	11	37N	7E	2870WL, 1225SL	3515WL, 1050SL	650	W-E	1500	5882	14398	18.2	13.1	33.9	66.8	650	650	617	583	YORKVILLE
6/86	120	KENDALL	11	37N	7E	3515WL, 1050SL	4160WL, 875SL	650	W-E	1500	5618	14560	12.2	9.7	54.4	63.9	650	650	596	586	YORKVILLE
6/86	121	KENDALL	13	37N	7E	2000WL, 20NL	2650WL, 20NL	650	W-E	1500	7914	14375	7.2	6.9	48.8	44.3	650	650	601	606	YORKVILLE
6/86	122	KENDALL	13	37N	7E	2650WL, 20NL	3300WL, 20NL	650	W-E	1500	7733	13451	6.9	5.4	37.2	23.9	645	639	608	615	YORKVILLE

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Appendix A *continued*

Date	Profile	County	Sec	Twn.	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/88	123	KENDALL	13	37N	7E	3300WL, 20NL	3950WL, 20NL	650	W-E	1500	15532	0	12.7	12.7	0.0	0.0	650	650	637	637	YORKVILLE
6/86	124	KENDALL	13	37N	7E	3950WL, 20NL	675EL, 20NL	650	W-E	1500	15482	0	13.5	14.5	0.0	0.0	650	650	637	636	YORKVILLE.*AURORA.SOUTH
6/88	125	KENDALL	13	37N	7E	675EL, 20NL	25EL, 20NL	650	W-E	1500	15172	0	14.8	19.4	0.0	0.0	650	650	635	631	AURORA.SOUTH
6/86	126	KENDALL	13.*18	37N	7E	25EL, 20NL	625WL, 20NL	650	W-E	1500	15784	0	19.1	15.8	0.0	0.0	650	650	631	634	AURORA.SOUTH
6/86	127	KENDALL	18	37N	8E	625WL, 20NL	1275WL, 20NL	650	W-E	1500	15261	0	15.8	20.5	0.0	0.0	650	650	634	630	AURORA.SOUTH
8/86	128	KENDALL	18	37N	8E	1275WL, 20NL	1925WL, 20NL	650	W-E	1500	15426	0	17.8	20.3	0.0	0.0	650	650	632	630	AURORA.SOUTH
6/86	129	KENDALL	18	37N	8E	1925WL, 20NL	2575WL, 20NL	650	W-E	1500	16149	0	20.1	22.0	0.0	0.0	650	650	630	828	AURORA.SOUTH
6/88	130	KENDALL	18	37N	8E	2575WL, 20NL	3225WL, 75NL	650	W-E	1500	15459	0	21.9	21.4	0.0	0.0	650	650	628	629	AURORA.SOUTH
6/86	131	KENDALL	18.*17	37N	8E	3225WL, 75NL	400WL, 175NL	650	W-E	1500	16195	0	23.8	13.0	0.0	0.0	650	650	626	637	AURORA.SOUTH
6/88	132	KENDALL	10	37N	7E	2650NL, 2640WL	2000NL, 2640WL	650	S-N	1500	6734	14015	10.5	9.0	70.9	53.4	653	654	582	601	YORKVILLE
6/86	133	KENDALL	10	37N	7E	2000NL, 2640WL	1350NL, 2640WL	650	S-N	1500	5736	12371	8.5	8.1	42.5	53.5	654	655	612	602	YORKVILLE
6/86	134	KENDALL	10	37N	7E	1350NL, 2640WL	700NL, 2640WL	650	S-N	1500	5263	13376	7.8	5.9	52.0	51.2	655	657	603	606	YORKVILLE
6/86	135	KENDALL	10	37N	7E	700NL, 2640WL	50NL, 2640WL	650	S-N	1500	5556	12931	9.8	0.0	18.3	76.1	657	659	639	583	YORKVILLE
6/86	136	KENDALL	3	37N	7E	160NL, 2640WL	810NL, 2640WL	650	S-N	1500	6250	13192	9.2	11.1	30.7	11.2	660	660	629	649	YORKVILLE
6/86	137	KENDALL	3	37N	7E	810NL, 2640WL	1460NL, 2640WL	650	S-N	1500	6173	13332	6.2	7.7	35.8	37.2	660	660	624	623	YORKVILLE
6/86	138	KENDALL	3	37N	7E	1460NL, 2640WL	2110NL, 2640WL	650	S-N	1500	5680	13717	4.7	6.2	55.4	35.2	658	660	603	625	YORKVILLE
6/86	139	KENDALL	3	37N	7E	2700NL, 2640WL	3350NL, 2640WL	650	S-N	1500	5839	14185	6.8	3.6	58.8	72.7	660	665	601	592	YORKVILLE
6/86	140	KENDALL	3	37N	7E	3350NL, 2640WL	4000NL, 2640WL	650	S-N	1500	5199	12365	2.6	4.9	47.3	30.9	660	657	613	626	YORKVILLE
6/86	141	KENDALL	3	37N	7E	4000NL, 2640WL	4650NL, 2640WL	650	S-N	1500	5108	14084	6.3	3.8	61.6	53.7	657	657	595	603	YORKVILLE
6/86	142	WILL	6	37N	9E	1200WL, 2550SL	1800WL, 2250SL	650	W-E	1500	6329	21889	6.2	164	6.5	179	695	702	689	523	AURORA.SOUTH
8/86	143	WILL	6	37N	9E	625WL, 2810SL	1200WL, 2550SL	650	W-E	1500	5839	14280	12.3	6.4	89.2	135	692	695	603	561	AURORA.SOUTH
6/86	144	WILL	6	37N	9E	25WL, 2675NL	625WL, 2810SL	650	W-E	1500	6242	11906	6.0	12.6	116	108	696	692	580	584	AURORA.SOUTH
6/86	145	KENDALL	6.*1	37N	8E	550EL, 2400NL	25WL, 2675NL	650	W-E	1500	6349	13100	6.9	6.4	99.5	106	695	702	596	596	AURORA.SOUTH
6/86	146	KENDALL	1	37N	8E	1135EL, 2100NL	550EL, 2400NL	650	W-E	1500	5813	13506	9.3	6.4	52.1	82.3	695	695	643	612	AURORA.SOUTH
6/86	147	KANE	31.*30	38N	7E	300NL, 1375EL	350SL, 1375EL	650	S-N	1500	5147	15905	7.2	5.1	89.5	116	690	690	601	574	YORKVILLE
6/86	148	KANE	30	38N	7E	350SL, 1375EL	1000SL, 1375EL	650	S-N	1500	5324	11086	6.7	7.2	112	87.4	690	698	578	611	YORKVILLE
6/86	149	KANE	30	38N	7E	1000SL, 1375EL	1650SL, 1375EL	650	S-N	1500	5988	13241	5.1	7.0	134	130	698	710	564	580	YORKVILLE
6/86	150	KENDALL	1	37N	8E	2525WL, 1325NL	3100WL, 1600NL	650	W-E	1500	4516	12405	10.3	4.0	77.1	93.0	700	700	623	607	AURORA.SOUTH
6/86	151	KENDALL	1	37N	8E	1950WL, 1025NL	2525WL, 1325NL	650	W-E	1500	5532	13150	15.9	10.8	88.2	110	692	700	604	590	AURORA.SOUTH
6/86	152	KENDALL	1	37N	8E	1350WL, 750NL	1950WL, 1025NL	650	W-E	1500	5814	12152	5.2	18.2	159	81.7	692	692	533	610	AURORA.SOUTH
6/86	153	KENDALL	12	37N	8E	2100NL, 1400WL	1450NL, 1400WL	650	S-N	1500	5988	15768	4.3	6.0	144	109	720	714	576	605	AURORA.SOUTH
6/86	154	KENDALL	12	37N	8E	1450NL, 1400WL	800NL, 1400WL	650	S-N	1500	5714	14627	4.7	4.7	113	103	714	714	602	611	AURORA.SOUTH
6/88	155	KANE	29	38N	7E	1300SL, 1350WL	1950SL, 1350WL	650	S-N	1500	6392	13804	14.9	11.6	131	104	700	700	569	596	YORKVILLE
6/86	156	KANE	32.*29	38N	7E	275NL, 500WL	275SL, 800WL	650	S-N	1500	6062	15462	7.7	11.5	141	127	695	695	554	568	YORKVILLE
6/88	157	KANE	29	38N	7E	275SL, 800WL	850SL, 1150WL	650	S-N	1500	5459	15369	13.8	14.8	168	127	695	698	527	571	YORKVILLE
6/86	158	KENDALL	1	37N	7E	3950WL, 2200NL	800EL, 1800NL	650	W-E	1500	6090	12625	11.6	12.7	31.9	46.5	660	660	628	614	YORKVILLE.*AURORA.SOUTH
6/86	159	KENDALL	1	37N	7E	3450WL, 2550NL	3950WL, 2200NL	650	W-E	1500	5973	12062	10.7	12.4	47.8	30.1	660	660	612	630	YORKVILLE
6/88	160	KANE	31.*30	38N	7E	350NL, 10WL	300SL, 10WL	650	S-N	1500	5896	20857	8.8	8.5	107	81.1	697	697	591	616	YORKVILLE
6/86	161	KANE	30	38N	7E	300SL, 10WL	950SL, 10WL	650	S-N	1500	6172	15992	6.6	12.4	51.0	74.5	697	700	646	626	YORKVILLE
6/88	162	KANE	30	38N	7E	950SL, 10WL	1600SL, 10WL	650	S-N	1500	5925	14723	14.8	11.4	55.0	53.3	700	705	645	652	YORKVILLE
6/86	163	KANE	30	38N	7E	1600SL, 10WL	2250SL, 10WL	650	S-N	1500	6696	15228	10.0	10.4	80.7	48.9	705	696	624	647	YORKVILLE
6/86	164	KANE	24.*25	38N	6E	200NL, 10EL	450SL, 10EL	650	S-N	1500	6013	16354	10.1	13.6	74.3	49.2	710	704	636	655	YORKVILLE.*SUGAR.GROVE
6/86	165	KANE	25	38N	6E	850NL, 10EL	200NL, 10EL	650	S-N	1500	5649	14321	10.0	7.2	39.5	62.4	708	710	669	648	YORKVILLE
6/86	166	KANE	23	38N	6E	2150SL, 20EL	2800SL, 20EL	650	S-N	1500	6296	14792	8.7	9.4	43.2	56.8	698	692	655	635	BIG.ROCK
6/86	167	KENDALL	17	37N	7E	1350EL, 10NL	700EL, 10NL	650	W-E	1500	5590	11735	14.0	0.0	88.1	78.0	640	640	552	562	YORKVILLE
6/86	168	KENDALL	17	37N	7E	700EL, 10NL	50EL, 10NL	650	W-E	1500	5806	13253	5.7	6.8	74.4	77.3	640	640	566	563	YORKVILLE
6/86	169	KENDALL	16	37N	7E	60WL, 10NL	710WL, 10NL	650	W-E	1500	5345	12493	7.8	10.9	45.2	53.3	640	640	595	587	YORKVILLE
6/86	170	KENDALL	16	37N	7E	710WL, 10NL	1360WL, 10NL	650	W-E	1500	5754	14826	10.9	7.0	78.3	60.8	640	640	562	579	YORKVILLE
6/86	171	KANE	24.*23	38N	6E	1250NL, 150WL	900NL, 400EL	650	S-N	1500	5922	13022	9.3	8.4	76.1	101	700	700	624	599	BIG.ROCK
6/88	172	KANE	23	38N	6E	1050NL, 275EL	750NL, 850EL	650	S-N	1500	5922	13022	9.1	10.4	93.5	99.8	700	700	607	600	BIG.ROCK
6/88	173	KANE	23	38N	6E	750NL, 850EL	475NL, 1450EL	650	S-N	1500	6290	12570	10.4	3.9	86.9	143	700	700	613	557	BIG.ROCK
6/88	174	KANE	24	38N	6E	200WL, 1500NL	825WL, 1350NL	650	W-E	1500	6118	14014	11.3	7.8	82.6	77.7	700	700	617	622	BIG.ROCK
6/86	175	KANE	24	38N	6E	625WL, 1400NL	1275WL, 1250NL	650	W-E	1500	6118	14014	12.1	10.2	75.2	82.3	700	700	625	618	BIG.ROCK
6/86	176	KANE	24	38N	6E	1075EL, 1300NL	1725EL, 1150NL	650	W-E	1500	6118	14014	10.9	13.7	95.6	63.8	700	700	604	636	BIG.ROCK
6/86	177	KANE	24	38N	6E	1525WL, 1175NL	2175WL, 1025NL	650	W-E	1500	6118	14014	14.0	11.4	64.8	58.0	700	700	635	642	BIG.ROCK

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
8/86	178	KENDALL	12	37N	8E	750SL, 1350WL	1400SL, 1350WL	650	S-N	1500	5626	13723	4.7	6.1	98.8	122	730	730	631	608	AURORA.SOUTH
6/86	179	KENDALL	12	37N	8E	1400SL, 1350WL	2050SL, 1350WL	650	S-N	1500	5633	13612	4.7	4.9	79.2	126	730	730	651	604	AURORA.SOUTH
6/88	180	KENDALL	4	37N	7E	1550WL, 50NL	2200WL, 50NL	650	W-E	1500	4908	12763	2.4	3.2	36.3	34.6	667	667	631	632	YORKVILLE
8/86	181	KENDALL	22	37N	8E	2500NL, 2600EL	1850NL, 2600EL	650	S-N	1500	5943	14778	6.0	12.3	86.1	56.3	684	684	598	628	AURORA.SOUTH
6/88	182	KENDALL	22	37N	8E	1850NL, 2600EL	1200NL, 2600EL	650	S-N	1500	5665	15121	7.6	19.6	54.0	74.7	684	678	630	603	AURORA.SOUTH
6/86	183	KENDALL	22	37N	8E	1200NL, 2600EL	550NL, 2600EL	650	S-N	1500	5514	14186	4.5	9.3	64.5	19.0	678	680	614	661	AURORA.SOUTH
6/86	184	KENDALL	15	37N	8E	2725EL, 1000SL	2725EL, 1650SL	650	S-N	1500	5369	14668	4.5	6.2	53.8	61.7	670	670	616	608	AURORA.SOUTH
6/88	185	KENDALL	15	37N	8E	2725EL, 1650SL	2725EL, 2300SL	650	S-N	1500	4819	14755	4.3	10.3	57.7	67.3	670	670	612	603	AURORA.SOUTH
6/86	186	KENDALL	20.*21	37N	8E	150EL, 2550NL	500WL, 2550NL	650	W-E	1500	6482	14062	6.8	12.8	39.8	50.3	660	660	620	610	AURORA.SOUTH
6/86	187	KENDALL	20	37N	8E	800EL, 2550NL	150EL, 2550NL	650	W-E	1500	7017	16122	8.7	1.3	41.7	45.0	660	660	618	615	AURORA.SOUTH
6/86	188	KENDALL	24	37N	7E	1950SL, 3200WL	2600SL, 3200WL	650	S-N	1500	5714	15894	21.9	19.2	33.9	49.2	649	649	615	600	YORKVILLE
6/88	189	KENDALL	24	37N	7E	1300SL, 3200WL	1950SL, 3200WL	650	S-N	1500	8097	14969	18.8	22.7	67.6	35.1	650	649	582	614	YORKVILLE
6/86	190	KENDALL	24.*19	37N	7E+	200EL, 1950NL	425WL, 1750NL	650	W-E	1500	7661	14336	19.2	29.0	19.2	34.5	655	655	636	621	AURORA.SOUTH
6/86	191	KENDALL	19	37N	8E	425WL, 1750NL	1050WL, 1650NL	650	W-E	1500	7191	14015	33.7	19.1	36.7	34.0	655	655	618	621	AURORA.SOUTH
6/86	192	KENDALL	2	37N	8E	2400WL, 2700NL	3000WL, 2975NL	650	W-E	1500	5369	15243	0.0	2.5	38.8	61.9	685	700	646	638	AURORA.SOUTH
6/86	193	KENDALL	2	37N	8E	1800WL, 2390NL	2400WL, 2700NL	650	W-E	1500	5372	15262	11.7	11.8	32.5	39.8	673	685	653	645	AURORA.SOUTH
6/86	194	KENDALL	3	37N	8E	900EL, 1550NL	250EL, 1650NL	650	W-E	1500	6500	14571	27.3	23.2	38.9	42.8	670	668	631	625	AURORA.SOUTH
6/86	195	KENDALL	3	37N	8E	1550EL, 1550NL	900EL, 1550NL	650	W-E	1500	6897	13458	16.9	16.1	39.5	63.3	668	670	629	607	AURORA.SOUTH
6/86	196	KENDALL	3	37N	8E	2200EL, 1550NL	1550EL, 1550NL	650	W-E	1500	6664	13460	15.2	15.1	49.1	41.3	668	668	619	627	AURORA.SOUTH
6/86	197	KENDALL	3	37N	8E	2850EL, 1550NL	2200EL, 1550NL	650	W-E	1500	6723	14083	9.7	9.2	37.0	38.9	668	668	631	629	AURORA.SOUTH
6/86	198	KENDALL	3	37N	8E	2500EL, 1550NL	2850EL, 1550NL	650	W-E	1500	6451	14358	4.4	10.6	29.4	47.3	670	668	641	621	AURORA.SOUTH
6/86	199	KENDALL	3	37N	8E	4150EL, 1550NL	3500EL, 1550NL	650	W-E	1500	5714	14704	2.6	3.9	37.0	40.6	668	670	631	629	AURORA.SOUTH
6/86	200	KENDALL	9	37N	8E	800EL, 900SL	275EL, 1250SL	650	W-E	1500	6349	12982	8.6	8.5	47.8	36.0	660	660	612	624	AURORA.SOUTH
6/86	201	KENDALL	9.*10	37N	8E	275EL, 1250SL	250WL, 1650SL	650	W-E	1500	6230	17079	8.5	11.4	57.7	46.6	660	660	602	613	AURORA.SOUTH
6/86	202	KENDALL	10	37N	8E	250WL, 1650SL	775WL, 2025SL	650	W-E	1500	6536	15509	11.4	13.3	54.6	42.2	660	660	605	618	AURORA.SOUTH
6/86	203	DUPAGE	19	38N	9E	2120EL, 1075NL	1440EL, 1000NL	650	W-E	1500	5788	15625	14.0	3.7	103	114	722	730	620	617	AURORA.NORTH.*NAPERVILLE
6/86	204	DUPAGE	19	38N	9E	1440EL, 1000NL	810EL, 925NL	650	W-E	1500	5788	15625	21.3	0.0	116	104	730	730	615	627	NAPERVILLE
6/86	205	DUPAGE	19	38N	9E	810EL, 925NL	175EL, 850NL	650	W-E	1500	5788	15625	16.4	8.3	112	114	730	725	618	611	NAPERVILLE
6/86	206	DUPAGE	19	38N	9E	680NL, 2525WL	40NL, 2450WL	650	S-N	1500	5714	18742	6.1	7.8	85.1	82.7	715	712	630	629	AURORA.NORTH
6/86	207	DUPAGE	19.*18	38N	9E	40NL, 2450WL	600SL, 2375WL	650	S-N	1500	6522	13866	10.8	4.2	81.9	80.9	712	718	630	637	AURORA.NORTH
6/86	208	DUPAGE	18	38N	9E	800WL, 1900NL	1450WL, 1910NL	650	W-E	1500	3957	15267	3.2	4.9	67.3	57.1	715	710	648	653	AURORA.NORTH
6/86	209	DUPAGE	18	38N	9E	1400WL, 1910NL	2050WL, 1920NL	650	W-E	1500	6106	16400	9.0	4.6	75.8	92.7	710	715	634	622	AURORA.NORTH
6/86	210	DUPAGE	18	38N	9E	3150WL, 2000NL	3750WL, 1750NL	650	W-E	1500	6042	14556	6.6	5.2	97.2	100	725	735	628	635	AURORA.NORTH.*NAPERVILLE
6/86	211	KANE	24	38N	8E	1450NL, 1300EL	800NL, 1300EL	650	S-N	1500	5882	13933	7.0	7.8	107	104	720	710	613	606	AURORA.NORTH
6/86	212	DUPAGE	32	39N	9E	2600EL, 2450NL	1950EL, 2400NL	650	W-E	1500	4847	16156	12.9	11.6	71.7	63.5	740	740	668	677	NAPERVILLE
6/86	213	DUPAGE	32	39N	9E	1950WL, 2475NL	2600EL, 2450NL	650	W-E	1500	5472	16590	12.0	10.4	70.4	104	750	740	680	636	NAPERVILLE
6/86	214	DUPAGE	32	39N	9E	1300WL, 2525NL	1950WL, 2475NL	650	W-E	1500	4909	13505	10.4	15.7	79.3	37.4	740	750	661	713	NAPERVILLE
6/86	215	DUPAGE	32	39N	9E	2300NL, 1850EL	1680NL, 2075EL	650	S-N	1500	5208	16214	10.8	8.0	82.1	73.8	738	734	656	660	NAPERVILLE
6/86	216	DUPAGE	32	39N	9E	1680NL, 2075EL	1100NL, 2325EL	650	S-N	1500	5113	17102	12.4	5.8	67.3	78.5	734	738	667	660	NAPERVILLE
6/88	217	DUPAGE	32	39N	9E	1100NL, 2325EL	500NL, 2575EL	650	S-N	1500	5921	15912	7.8	7.6	71.2	86.1	738	740	667	654	NAPERVILLE
6/86	218	DUPAGE	32.*29	39N	9E	425NL, 2610EL	175SL, 2850EL	650	S-N	1500	5788	17131	14.6	11.1	52.0	72.8	740	740	688	667	NAPERVILLE
6/86	219	DUPAGE	29	39N	9E	175SL, 2850EL	750SL, 3040EL	650	S-N	1500	5628	15105	8.1	14.6	73.1	57.9	740	737	667	679	NAPERVILLE
6/86	220	DUPAGE	29	39N	9E	750SL, 3040EL	1350SL, 3425EL	650	S-N	1500	5905	14538	14.4	9.1	43.0	77.7	737	734	694	656	NAPERVILLE
6/86	221	DUPAGE	29	39N	9E	1350SL, 3425EL	2000SL, 3475EL	650	S-N	1500	5399	18555	13.5	1.9	60.8	78.7	734	738	673	659	NAPERVILLE
6/88	222	DUPAGE	29	39N	9E	2000SL, 3475EL	2650SL, 3475EL	650	S-N	1500	5602	14798	5.6	11.6	49.8	66.6	738	738	688	671	NAPERVILLE
6/86	223	DUPAGE	29	39N	9E	2650SL, 3475EL	1950NL, 3425EL	650	S-N	1500	4018	15661	3.1	5.7	72.7	74.8	738	730	665	655	NAPERVILLE
6/86	224	DUPAGE	29	39N	9E	1950NL, 3425EL	1300NL, 3350EL	650	S-N	1500	5663	14343	9.4	16.2	75.7	91.7	730	740	654	648	NAPERVILLE
6/86	225	DUPAGE	20	39N	9E	1150SL, 3125EL	500SL, 3175EL	650	S-N	1500	6110	12920	13.7	12.2	74.3	57.8	741	741	667	683	NAPERVILLE
6/86	226	DUPAGE	20.*29	39N	9E	500SL, 3175EL	150NL, 3250EL	650	S-N	1500	4819	15247	10.0	13.3	103	26.4	742	745	639	719	NAPERVILLE
6/86	227	DUPAGE	29	39N	9E	150NL, 3250EL	800NL, 3300EL	650	S-N	1500	4601	13916	2.2	10.3	96.4	67.8	740	740	644	672	NAPERVILLE
6/86	228	DUPAGE	29	39N	9E	800NL, 3300EL	1425NL, 3375EL	650	S-N	1500	4533	13445	8.7	3.2	83.7	77.0	740	740	656	663	NAPERVILLE
6/86	229	DUPAGE	20	39N	9E	3025EL, 1120SL	2410EL, 875SL	650	W-E	1500	5591	18102	12.3	8.3	50.0	85.4	740	740	690	655	NAPERVILLE
6/88	230	DUPAGE	20	39N	9E	2410EL, 875SL	1800EL, 625SL	650	W-E	1500	3688	14321	9.0	3.0	66.1	37.1	740	740	674	703	NAPERVILLE
6/86	231	DUPAGE	20	39N	9E	1625WL, 1525SL	1075WL, 1900SL	650	W-E	1500	5471	16704	9.7	3.2	103	26.8	745	743	642	716	NAPERVILLE
6/86	232	DUPAGE	20	39N	9E	1075WL, 1900SL	500WL, 2250SL	650	W-E	1500	5044	19105	2.8	0.0	130	82.7	750	745	620	662	NAPERVILLE

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	233	DUPAGE	19.*20	39N	9E	40EL, 2600SL	500WL, 2250SL	650	W-E	1500	5044	19105	10.7	7.8	81.2	102	750	745	669	643	NAPERVILLE
6/86	234	DUPAGE	20	39N	9E	1450SL, 3100EL	2100SL, 3075EL	650	S-N	1500	5221	14662	9.9	8.5	66.1	76.8	740	740	674	663	NAPERVILLE
6/86	235	DUPAGE	20	39N	9E	2100SL, 3075EL	2750SL, 3150EL	650	S-N	1500	5540	16619	3.3	6.7	102	66.9	740	740	638	673	NAPERVILLE
6/86	236	DUPAGE	20	39N	9E	2750NL, 3150EL	1900NL, 3250EL	650	S-N	1500	5504	15755	6.4	14.3	48.1	58.3	740	745	692	687	NAPERVILLE
6/86	237	DUPAGE	20	39N	9E	1900NL, 3250EL	1275NL, 3480EL	500	S-N	1500	5478	17033	7.3	10.0	52.8	75.6	745	745	692	669	NAPERVILLE
6/86	238	KANE	5	38N	7E	1820EL, 2525SL	1180EL, 2600SL	650	W-E	1500	6746	13271	11.5	7.7	151	147	705	705	554	558	SUGAR.GROVE
8/88	239	KANE	5	38N	7E	1325EL, 2450SL	675EL, 2400SL	650	W-E	1500	6445	18382	7.0	6.7	169	182	705	705	538	523	SUGAR.GROVE
6/86	240	KANE	5.*4	38N	7E	425EL, 2400SL	75WL, 2000SL	650	S-N	1500	6473	12706	11.8	11.3	113	154	705	705	593	551	SUGAR.GROVE
6/88	241	KANE	24	38N	7E	1450WL, 25NL	2075WL, 150NL	650	W-E	1500	5546	17852	7.1	7.4	39.8	155	689	670	649	515	SUGAR.GROVE
6/86	242	DUPAGE	20	39N	9E	350NL, 700WL	600NL, 1125WL	650	S-N	1500	5511	16809	10.6	11.2	51.6	80.8	738	738	686	657	NAPERVILLE
6/86	243	DUPAGE	20	39N	9E	600NL, 1125WL	1150NL, 1720WL	650	S-N	1500	5736	16231	14.1	14.5	64.3	68.4	738	738	674	670	NAPERVILLE
6/88	244	DUPAGE	20	39N	9E	700WL, 10NL	1350WL, 10NL	650	W-E	1500	5293	19215	6.8	9.9	78.0	60.4	740	740	662	680	NAPERVILLE
6/86	245	DUPAGE	20	39N	9E	1850WL, 10NL	2500WL, 10NL	650	W-E	1500	5902	16684	10.2	11.3	59.5	79.7	745	744	686	664	NAPERVILLE
6/86	246	DUPAGE	20	39N	9E	2500WL, 10NL	3150WL, 10NL	650	W-E	1500	5914	16094	15.4	10.5	61.7	87.5	744	744	682	657	NAPERVILLE
6/88	247	DUPAGE	17	39N	9E	50SL, 250WL	525SL, 650WL	650	S-N	1500	5828	17617	7.9	6.1	36.5	70.8	740	740	704	669	NAPERVILLE
6/86	248	DUPAGE	17	39N	9E	525SL, 850WL	1030SL, 1050WL	650	S-N	1500	5411	17049	6.1	13.2	45.3	57.7	740	735	695	677	NAPERVILLE
6/86	249	DUPAGE	17	39N	9E	1030SL, 1050WL	1525SL, 1425WL	650	S-N	1500	5827	16614	6.4	17.9	66.1	48.9	735	734	669	685	NAPERVILLE
8/86	250	DUPAGE	18	39N	9E	200SL, 25EL	850SL, 25EL	650	S-N	1500	4070	15175	11.2	11.5	35.9	40.7	740	735	704	694	NAPERVILLE
6/86	251	DUPAGE	18	39N	9E	850SL, 25EL	1500SL, 25EL	650	S-N	1500	4019	16187	7.3	6.7	54.0	60.9	735	737	681	676	NAPERVILLE
6/86	252	DUPAGE	18	39N	9E	2150SL, 25EL	1500SL, 25EL	650	S-N	1500	5630	16630	14.3	13.6	61.5	73.1	737	735	676	662	NAPERVILLE
8/88	253	DUPAGE	18	39N	9E	1500SL, 25EL	2150SL, 25EL	650	S-N	1500	5838	16619	6.6	13.3	66.7	58.8	737	735	670	676	NAPERVILLE
8/86	254	DUPAGE	19	39N	9E	995EL, 75NL	350EL, 0NL	650	W-E	1500	5491	16476	10.1	12.5	83.9	43.9	738	740	654	696	NAPERVILLE
6/86	255	DUPAGE	19	39N	9E	1640EL, 150NL	995EL, 75NL	650	W-E	1500	5047	17158	10.1	10.3	59.9	62.3	741	738	681	676	NAPERVILLE
6/86	256	DUPAGE	19.*20	39N	9E	50EL, 775SL	450WL, 1175SL	650	W-E	1500	6662	14985	17.4	12.3	52.3	101	742	745	690	644	NAPERVILLE
6/86	257	DUPAGE	19	39N	9E	575EL, 350SL	50EL, 775SL	650	W-E	1500	6662	14985	13.5	7.2	83.2	51.6	737	742	654	690	NAPERVILLE
6/86	258	DUPAGE	18	39N	9E	1250EL, 2450NL	675EL, 2100NL	650	W-E	1500	5208	16675	4.5	9.7	65.8	57.9	738	738	672	680	NAPERVILLE
6/88	259	KANE	24	38N	8E	1700NL, 2625EL	1050NL, 2625EL	650	S-N	1500	5817	12427	9.7	19.0	147	56.8	717	720	570	663	AURORA.NORTH
6/86	260	KANE	25	38N	8E	1750WL, 2675SL	2400WL, 2700SL	650	W-E	1500	4717	15712	7.8	11.0	90.6	87.8	690	685	599	597	AURORA.SOUTH
8/86	261	KANE	25	38N	8E	2400WL, 2700SL	3050WL, 2700SL	650	W-E	1500	4001	14740	3.0	17.4	82.2	68.0	710	710	628	642	AURORA.SOUTH
6/86	262	KANE	25	38N	8E	2000EL, 2700SL	1350EL, 2700SL	650	W-E	1500	6565	13108	12.7	3.8	59.4	84.1	695	695	636	611	AURORA.SOUTH
6/86	263	KANE	25	38N	8E	1350EL, 2700SL	700EL, 2700SL	650	W-E	1500	5096	13099	4.1	8.0	45.7	47.0	895	695	649	648	AURORA.SOUTH
6/88	264	KANE	25	38N	8E	700EL, 2700SL	50EL, 2700SL	650	W-E	1500	8273	12830	12.2	10.1	79.3	79.2	695	695	616	616	AURORA.SOUTH
6/88	265	DUPAGE	17	38N	9E	1350WL, 675NL	2000WL, 700NL	650	W-E	1500	6430	17664	9.7	10.1	113	110	730	725	617	615	NAPERVILLE
8/88	268	DUPAGE	7	38N	9E	850EL, 1950NL	200EL, 1950NL	650	W-E	1500	5969	14921	7.8	5.8	64.0	63.0	740	740	676	677	NAPERVILLE
8/88	267	DUPAGE	7.*8	38N	9E	200EL, 1950NL	450WL, 2000NL	650	W-E	1500	5882	15424	5.4	5.6	68.8	68.0	740	740	671	672	NAPERVILLE
6/86	268	DUPAGE	5	38N	9E	700WL, 2900SL	1350WL, 2800SL	650	W-E	1500	5882	16874	6.6	8.1	37.9	64.4	733	730	695	666	NAPERVILLE
6/86	269	DUPAGE	5	38N	9E	50WL, 2975SL	700WL, 2900SL	650	W-E	1500	6514	17036	6.6	6.2	58.7	55.9	735	733	676	677	NAPERVILLE
6/86	270	DUPAGE	5.*6	38N	9E	600EL, 3050SL	50WL, 2975SL	650	W-E	1500	5225	16118	2.4	7.5	50.6	45.0	730	735	679	690	NAPERVILLE
6/86	271	DUPAGE	6	38N	9E	1275EL, 3150SL	600EL, 3050SL	650	W-E	1500	5427	15787	4.5	7.2	54.5	60.6	730	730	676	669	NAPERVILLE
6/86	272	DUPAGE	5	38N	9E	2225WL, 400NL	2875WL, 475NL	650	W-E	1500	5478	16492	5.8	5.6	63.2	73.4	743	740	680	667	NAPERVILLE
6/88	273	DUPAGE	5	38N	9E	2875WL, 475NL	3525WL, 525NL	650	W-E	1500	4406	15312	1.6	6.8	58.9	52.5	740	740	681	688	NAPERVILLE
6/86	274	DUPAGE	20.*17	38N	9E	600NL, 560WL	50SL, 590WL	650	S-N	1500	5767	14927	7.1	4.8	89.6	97.8	720	720	630	622	NAPERVILLE
6/86	275	DUPAGE	17	38N	9E	50SL, 590WL	700SL, 600WL	650	S-N	1500	5377	15831	4.2	6.3	101	86.2	720	720	619	634	NAPERVILLE
6/88	276	DUPAGE	17	38N	9E	700SL, 600WL	1350SL, 610WL	650	S-N	1500	5519	14418	7.0	5.4	110	102	720	715	610	613	NAPERVILLE
6/86	277	DUPAGE	20	38N	9E	775NL, 500WL	1425NL, 475WL	650	S-N	1500	5769	25000	11.3	0.0	67.6	229	720	720	652	492	NAPERVILLE
6/88	278	DUPAGE	20	38N	9E	1900NL, 450WL	2550NL, 425WL	650	S-N	1500	5435	16047	6.8	6.9	110	90.5	720	720	610	630	NAPERVILLE
6/86	279	DUPAGE	20	38N	9E	2650NL, 420WL	3300NL, 410WL	650	S-N	1500	5681	17030	13.5	4.9	112	91.2	718	715	606	624	NAPERVILLE
6/88	280	DUPAGE	20	38N	9E	1250SL, 350WL	600SL, 250WL	650	S-N	1500	5460	14331	6.5	13.2	147	66.5	703	705	556	639	NAPERVILLE
6/86	281	DUPAGE	20.*29	38N	9E	600SL, 250WL	50NL, 150WL	650	S-N	1500	5983	20288	14.0	15.3	88.3	137	695	703	607	566	NAPERVILLE
6/86	282	DUPAGE	29.*30	38N	9E	200NL, 125WL	800NL, 125EL	650	S-N	1500	5174	15583	7.3	7.9	535	64.4	685	693	632	629	NAPERVILLE
6/86	284	KANE	24	38N	8E	1300SL, 2200EL	650SL, 2250EL	650	S-N	1500	5633	16312	5.8	7.5	110	127	710	700	600	573	AURORA.NORTH
6/86	285	KANE	24	38N	8E	650SL, 2250EL	0SL, 2300EL	650	S-N	1500	5435	18956	9.6	11.7	121	110	700	700	579	590	AURORA.NORTH
6/88	288	KANE	25	38N	8E	1250NL, 2350EL	650NL, 2350EL	650	S-N	1500	5530	13449	11.3	11.5	89.9	96.1	710	700	620	604	AURORA.NORTH
6/86	287	KANE	24	38N	8E	2000SL, 2200EL	1350SL, 2200EL	650	S-N	1500	6060	13684	8.5	7.4	106	128	700	710	594	582	AURORA.NORTH
6/86	288	KANE	26	38N	8E	1000SL, 2250EL	400SL, 2050EL	650	S-N	1500	6024	14550	6.9	10.2	133	104	690	680	557	576	AURORA.SOUTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/88	289	KANE	35	38N	8E	825NL, 1650EL	1450NL, 1450EL	650	S-N	1500	5712	12801	8.8	9.9	86.7	136	680	680	593	544	AURORA.SOUTH
6/86	290	KANE	35	38N	8E	700WL, 2475NL	1350WL, 2450NL	650	W-E	1500	5170	14697	7.5	13.0	88.4	29.1	695	685	607	658	AURORA.SOUTH
6/86	291	DUPAGE	20	38N	9E	750NL, 10WL	100NL, 10WL	650	S-N	1500	5096	14630	17.2	9.0	70.6	91.3	715	715	644	624	NAPERVILLE
8/88	292	WILL	6	37N	9E	2350SL, 1800WL	3000SL, 1800WL	650	S-N	1500	5945	13187	12.9	16.1	114	135	702	700	588	565	AURORA.SOUTH
6/88	293	WILL	6	37N	9E	650EL, 2050SL	0EL, 2025SL	650	W-E	1500	6375	13721	11.6	11.8	85.6	82.4	705	705	619	623	NORMANTOWN
6/86	294	WILL	8	37N	9E	2000WL, 2150SL	2650WL, 2125SL	650	W-E	1500	6253	13671	13.1	12.5	113	119	702	710	589	591	AURORA.SOUTH
6/86	295	WILL	5	37N	9E	1300SL, 700WL	1950SL, 700WL	650	S-N	1500	6558	16663	8.5	8.3	77.1	90.2	696	700	619	610	NORMANTOWN
6/86	296	WILL	5	37N	9E	650SL, 700WL	1300SL, 700WL	650	S-N	1500	7018	13330	8.8	9.2	56.7	70.3	694	696	637	626	NORMANTOWN
6/86	297	WILL	4	37N	9E	2000SL, 25WL	2650SL, 25WL	650	S-N	1500	7284	15209	0.0	10.1	89.8	169	697	692	607	524	NORMANTOWN
6/86	298	WILL	4	37N	9E	1350SL, 25WL	2000SL, 25WL	650	S-N	1500	7284	15209	11.8	0.0	76.0	89.4	700	697	624	608	NORMANTOWN
6/86	299	WILL	5	37N	9E	2400SL, 2600WL	3050SL, 2600WL	650	S-N	1500	6303	13677	9.6	0.0	117	126	698	705	581	579	NORMANTOWN
6/86	300	WILL	5	37N	9E	3050SL, 2600WL	3700SL, 2600WL	650	S-N	1500	6303	13677	6.1	0.0	118	69.4	705	700	587	631	NORMANTOWN
6/86	301	WILL	5	37N	9E	3700SL, 2600WL	4350SL, 2600WL	650	S-N	1500	6303	13677	4.7	10.5	72.5	60.1	700	710	628	650	NORMANTOWN
6/86	302	WILL	5	37N	9E	125WL, 2025SL	775WL, 2010SL	650	W-E	1500	6391	15789	10.0	10.2	76.5	88.6	700	700	624	611	NORMANTOWN
6/86	303	WILL	5	37N	9E	710WL, 1950SL	1360WL, 1950SL	1300	W-E	1500	6915	13599	8.1	9.4	81.6	71.5	700	700	618	629	NORMANTOWN
6/86	304	WILL	5	37N	9E	1300WL, 1950SL	2020WL, 2120SL	1300	W-E	1500	6915	13599	16.2	10.7	65.6	75.8	700	700	634	624	NORMANTOWN
6/86	305	KANE	3	39N	6E	120SL, 2600WL	1420SL, 2600WL	1300	S-N	1500	6011	12584	5.2	2.4	147	140	840	840	693	700	MAPLE.PARK
6/86	306	KANE	3	39N	6E	1420SL, 2600WL	2720SL, 2600WL	1300	S-N	1500	5915	12602	4.8	4.4	127	133	840	843	713	710	MAPLE.PARK
8/86	307	KANE	3	39N	6E	2720SL, 2600WL	4020SL, 2600WL	1300	S-N	1500	6131	12083	4.4	9.4	149	77.2	843	850	694	773	MAPLE.PARK
6/86	308	KANE	10	39N	6E	2600EL, 25NL	1300EL, 25NL	1300	W-E	1500	5632	12322	7.6	3.9	133	126	840	840	707	714	MAPLE.PARK
6/86	309	WILL	4	37N	9E	770EL, 2960NL	120EL, 2950NL	650	W-E	1500	6250	15080	12.6	11.6	54.1	47.8	695	695	641	647	NORMANTOWN
6/86	310	WILL	4	37N	9E	1420EL, 2970NL	770EL, 2960NL	650	W-E	1500	7407	16640	17.5	16.2	39.4	73.4	695	695	656	622	NORMANTOWN
6/86	311	WILL	4	37N	9E	2070EL, 2980NL	1420EL, 2970NL	650	W-E	1500	5263	16220	11.7	10.7	40.7	61.5	695	695	654	634	NORMANTOWN
6/86	312	WILL	4	37N	9E	2720EL, 2985NL	2070EL, 2980NL	650	W-E	1500	5882	11933	12.1	10.2	38.6	36.1	695	695	656	659	NORMANTOWN
6/88	313	WILL	4	37N	9E	3370EL, 2990NL	2720EL, 2985NL	650	W-E	1500	6745	14850	16.0	13.1	108	66.1	695	695	587	629	NORMANTOWN
6/86	314	WILL	4	37N	9E	4020EL, 2995NL	3370EL, 2990NL	650	W-E	1500	5939	13835	0.0	9.2	146	108	691	695	545	587	NORMANTOWN
6/86	315	WILL	4	37N	9E	4670EL, 2995NL	4020EL, 2995NL	650	W-E	1500	5939	13835	11.0	0.0	83.5	147	695	691	612	544	NORMANTOWN
6/86	316	WILL	5	37N	9E	1700EL, 2625SL	1050EL, 2625SL	650	W-E	1500	6107	15102	8.7	8.3	120	125	690	690	570	565	NORMANTOWN
6/86	317	WILL	5	37N	9E	1050EL, 2625SL	400EL, 2625SL	650	W-E	1500	6107	15102	0.0	10.6	125	103	690	690	565	587	NORMANTOWN
6/86	318	DUPAGE	32	38N	9E	1650EL, 2600SL	1000EL, 2600SL	650	W-E	1500	6924	16499	16.0	10.7	85.2	101	705	705	620	604	NORMANTOWN
6/86	319	DUPAGE	32	38N	9E	1000EL, 2600SL	350EL, 2600SL	650	W-E	1500	6924	16499	2.5	6.9	101	78.8	705	705	604	626	NORMANTOWN
6/86	320	DUPAGE	33	38N	9E	450EL, 2600SL	1100EL, 2600SL	650	W-E	1500	5263	16761	8.3	9.1	48.5	54.6	700	700	652	645	NORMANTOWN
6/86	321	DUPAGE	33	38N	9E	0WL, 2600SL	650WL, 2600SL	650	W-E	1500	5802	16122	8.4	7.3	73.1	58.3	710	710	637	652	NORMANTOWN
8/86	322	DUPAGE	33	38N	9E	850WL, 2600SL	1300WL, 2600SL	650	W-E	1500	6972	14796	9.8	9.4	52.7	61.3	710	710	657	649	NORMANTOWN
6/86	323	DUPAGE	33	38N	9E	1950WL, 2600SL	2600WL, 2600SL	650	W-E	1500	6468	16479	11.3	7.3	72.8	57.3	710	710	637	653	NORMANTOWN
6/86	324	DUPAGE	33	38N	9E	2600WL, 2600SL	3250WL, 2600SL	650	W-E	1500	8325	14117	14.0	3.0	36.9	87.1	710	706	673	619	NORMANTOWN
8/88	325	WILL	5	37N	9E	2250SL, 2650EL	1600SL, 2650EL	650	S-N	1500	6685	12711	12.6	8.3	113	67.8	680	692	567	624	NORMANTOWN
6/88	326	WILL	6	37N	9E	1550NL, 1800WL	900NL, 1800WL	650	S-N	1500	5419	14931	7.3	10.8	79.8	82.6	700	700	620	617	AURORA.SOUTH
6/86	327	KANE	35	38N	8E	2300NL, 2675EL	1650NL, 2675EL	650	S-N	1500	5275	14220	16.2	13.1	62.0	103	694	710	632	607	AURORA.SOUTH
8/86	328	KANE	26	38N	8E	1750EL, 3350SL	1100EL, 3350SL	650	W-E	1500	5897	15263	9.9	6.2	135	109	725	725	590	616	AURORA.SOUTH
6/88	329	KANE	25	38N	8E	100WL, 1900SL	750WL, 1900SL	650	W-E	1500	5317	13500	12.3	8.3	86.8	104	710	710	623	606	AURORA.SOUTH
6/86	330	KANE	24	38N	8E	2050SL, 2400EL	2700SL, 2400EL	650	S-N	1500	5762	13536	8.9	8.9	128	90.4	710	710	582	620	AURORA.NORTH
6/88	331	DUPAGE	19	38N	9E	2400SL, 200WL	1750SL, 200WL	650	S-N	1500	5966	13077	7.2	7.1	96.6	105	702	700	605	595	AURORA.NORTH
6/86	332	DUPAGE	19	38N	9E	1750SL, 200WL	1100SL, 200WL	650	S-N	1500	5905	17252	9.4	9.3	134	125	704	702	570	578	AURORA.NORTH
6/86	333	KANE	32	40N	7E	75WL, 2550SL	1350WL, 2725SL	1300	W-E	1500	6424	14277	8.1	44.8	148	122	905	872	757	750	ELBURN
6/86	334	KANE	32	40N	7E	1350WL, 2725SL	2625WL, 2925SL	1300	W-E	1500	6468	16479	16.4	10.8	119	198	870	900	751	703	ELBURN
6/88	335	KANE	32	40N	7E	2625WL, 2925SL	3900WL, 3100SL	1300	W-E	1500	6468	16479	10.3	8.3	216	201	900	910	685	709	ELBURN
6/86	336	DUPAGE	20.*19	38N	9E	175WL, 810NL	475EL, 900NL	650	W-E	1500	6234	16696	8.7	6.9	140	128	720	719	580	591	NAPERVILLE
6/86	337	DUPAGE	19	38N	9E	475EL, 900NL	1125EL, 1000NL	650	W-E	1500	6234	16696	7.2	7.1	111	143	720	720	609	577	NAPERVILLE
6/88	338	DUPAGE	19	38N	9E	1125EL, 1000NL	1750EL, 1100NL	650	W-E	1500	6234	16696	9.6	7.6	118	125	720	720	602	596	AURORA.NORTH.*NAPERVILLE
6/86	339	KANE	8	39N	7E	100WL, 3000SL	1250WL, 2450SL	1300	W-E	1500	6595	14561	9.4	7.7	130	135	806	803	676	668	ELBURN.*SUGAR.GROVE
6/86	340	DUPAGE	19	38N	9E	1750NL, 2900WL	1100NL, 2800WL	650	S-N	1500	5590	15059	14.9	12.2	111	96.3	716	720	605	624	AURORA.NORTH
6/86	341	DUPAGE	19	38N	9E	1600NL, 2500WL	2175NL, 2800WL	650	S-N	1500	5180	19684	8.3	8.0	90.1	130	720	715	630	585	AURORA.NORTH
6/86	342	DUPAGE	19	38N	9E	1150NL, 2100WL	1790NL, 2150WL	650	S-N	1500	5970	15511	10.4	14.4	106	101	715	720	609	619	AURORA.NORTH
6/86	343	DUPAGE	19	38N	9E	2050NL, 2150WL	2690NL, 2000WL	650	S-N	1500	5305	15261	11.6	10.7	87.5	106	730	720	643	614	AURORA.NORTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	344	KANE	24	38N	8E	2000SL, 2200EL	1350SL, 2200EL	650	S-N	1500	5674	12706	9.5	8.9	129	91.4	709	700	580	609	AURORA.NORTH
6/66	345	KANE	5	39N	7E	2650WL, 1850NL	1350EL, 2000NL	1300	W-E	1500	6427	13432	13.5	12.5	178	196	830	830	652	634	ELBURN
6/86	346	KANE	5	39N	7E	2650WL, 1850NL	50EL, 2125NL	1300	W-E	1500	6436	12907	13.7	12.8	200	131	830	830	630	699	ELBURN
6/86	347	KANE	32	40N	7E	520WL, 1350SL	1820WL, 1350SL	1300	W-E	1500	5915	13903	7.6	5.6	159	177	878	880	717	703	ELBURN
6/86	348	KANE	15	40N	7E	1600EL, 1550SL	600EL, 1100SL	1300	W-E	1500	5824	13257	17.9	0.0	163	169	840	840	677	671	ELBURN
6/66	349	KANE	15.*14	40N	7E	600EL, 1100SL	620WL, 600SL	1300	W-E	1500	5824	13257	2.9	7.7	170	161	840	840	670	679	ELBURN
6/86	350	KANE	14	40N	7E	620WL, 600SL	1840WL, 125SL	1300	W-E	1500	5824	13257	0.0	11.5	151	151	840	840	689	689	ELBURN
6/86	351	KANE	15	40N	7E	2050EL, 1650SL	3250EL, 2150SL	1300	W-E	1500	6309	18425	13.1	13.2	235	258	840	840	606	582	ELBURN
6/86	352	KANE	15.*16	40N	7E	700WL, 2250SL	525EL, 1900SL	1300	W-E	1500	7011	11912	0.0	41.3	171	58.2	850	850	680	792	ELBURN
6/88	353	KANE	16	40N	7E	525EL, 1900SL	1750EL, 1475SL	1300	W-E	1500	7011	11912	14.0	6.5	185	176	850	850	665	674	ELBURN
6/88	354	KANE	17	40N	7E	3000EL, 400SL	1675EL, 450SL	1300	W-E	1500	6185	14552	20.9	0.0	190	247	880	880	690	633	ELBURN
6/86	355	KANE	17	40N	7E	1675EL, 450SL	375EL, 500SL	1300	W-E	1500	6185	14552	7.2	14.4	242	212	880	870	638	659	ELBURN
6/86	356	KANE	16	40N	7E	1100WL, 700SL	2350WL, 1100SL	1300	W-E	1500	5114	17594	16.3	16.1	201	199	890	890	689	691	ELBURN
8/86	357	KANE	16	40N	7E	2350WL, 1100SL	3600WL, 1500SL	1300	W-E	1500	4520	11852	12.2	7.0	134	91.7	890	890	756	798	ELBURN
6/86	358	KANE	17	40N	7E	800WL, 375SL	2125WL, 400SL	1300	W-E	1500	6266	14154	29.4	20.4	206	210	890	890	684	680	ELBURN
8/86	359	DUPAGE	19.*18	38N	9E	2575WL, 50NL	3225WL, 50SL	650	W-E	1500	5463	16626	13.0	12.4	59.5	88.9	720	710	661	621	AURORA.NORTH
6/88	360	DUPAGE	19	38N	9E	1100EL, 100NL	450EL, 100NL	650	W-E	1500	5505	15989	7.3	0.0	135	151	720	715	585	564	NAPERVILLE
6/86	361	DUPAGE	19.*20	38N	9E	450EL, 100NL	200WL, 100NL	650	W-E	1500	5505	15989	0.0	9.3	141	90.8	715	720	574	629	NAPERVILLE
6/88	362	DUPAGE	19	38N	9E	2925WL, 2450NL	1225EL, 2420NL	650	W-E	1500	5952	14077	9.3	9.6	99.3	96.5	710	710	611	614	AURORA.NORTH.*NAPERVILLE
6/86	363	KANE	33	38N	8E	2400EL, 50NL	1950EL, 200NL	450	W-E	1500	6291	12150	13.7	13.0	75.5	66.0	630	630	555	564	AURORA.SOUTH
6/88	364	KANE	33	38N	8E	225NL, 2475EL	25NL, 1875EL	650	S-N	1500	6132	12832	13.5	12.1	93.4	79.4	637	634	544	554	AURORA.SOUTH
6/88	365	DUPAGE	19	38N	9E	1150EL, 1000NL	500EL, 900NL	650	W-E	1500	5726	17404	6.2	8.9	136	115	727	721	591	606	NAPERVILLE
6/86	366	DUPAGE	19	38N	9E	3035WL, 1050NL	1150EL, 1000NL	650	W-E	1500	5726	17404	7.2	3.5	132	132	730	727	598	595	AURORA.NORTH.*NAPERVILLE
6/86	367	DUPAGE	19	38N	9E	1560NL, 1450EL	1125NL, 1875EL	650	S-N	1500	5931	15777	11.5	10.6	119	117	711	720	592	603	AURORA.NORTH.*NAPERVILLE
6/66	368	DUPAGE	19	38N	9E	700EL, 1500NL	50EL, 1500NL	650	W-E	1500	6910	10381	12.4	13.1	102	101	715	710	613	609	NAPERVILLE
8/86	369	DUPAGE	19	38N	9E	1350EL, 1500NL	700EL, 1500NL	650	W-E	1500	6910	10381	18.1	13.7	18.1	111	714	714	696	603	NAPERVILLE
6/86	370	KANE	26	38N	8E	1800SL, 1950EL	2200SL, 1950EL	400	S-N	1500	6544	16667	14.0	9.9	130	66.5	710	710	580	644	AURORA.SOUTH
6/86	371	KANE	26	38N	8E	2700WL, 2325SL	3350WL, 2275SL	650	W-E	1500	5810	14207	9.0	6.2	81.0	104	700	700	619	596	AURORA.SOUTH
6/86	372	DUPAGE	19	38N	9E	1950WL, 2500SL	2600WL, 2500SL	650	W-E	1500	6020	13608	10.4	10.8	90.2	69.4	714	714	624	625	AURORA.NORTH
6/88	373	DUPAGE	19	38N	9E	2000SL, 2200WL	2650SL, 2200WL	650	S-N	1500	6046	13818	11.6	13.8	119	66.8	711	722	592	635	AURORA.NORTH
6/86	374	KANE	24	38N	8E	375WL, 5SL	1025WL, 5SL	650	W-E	1500	6515	12442	12.1	11.0	124	120	700	700	576	580	AURORA.NORTH
6/86	375	KANE	24	38N	8E	1300WL, 625SL	1950WL, 625SL	650	W-E	1500	6925	15119	20.1	17.3	229	131	700	700	471	569	AURORA.NORTH
8/86	376	KANE	24	38N	8E	50SL, 2525WL	700SL, 2550WL	650	S-N	1500	5707	13118	5.4	10.1	105	109	700	700	595	591	AURORA.NORTH
8/88	377	KANE	24	38N	8E	1800WL, 850SL	2400WL, 850SL	650	W-E	1500	5155	12665	22.9	10.1	104	126	700	700	596	574	AURORA.NORTH
6/86	378	KANE	25	38N	7E	1800WL, 850SL	2425WL, 1050SL	650	W-E	1500	6250	16834	16.1	11.8	54.7	41.3	670	670	615	629	YORKVILLE
8/88	379	KANE	25	38N	7E	350SL, 2700WL	950SL, 2460WL	650	S-N	1500	5263	15603	9.6	10.4	54.4	33.9	670	670	618	636	YORKVILLE
8/86	380	KANE	25	38N	8E	2375WL, 875SL	3000WL, 1100SL	650	W-E	1500	5263	14237	9.8	5.2	38.9	42.4	670	660	631	618	YORKVILLE
6/88	381	KANE	36.*25	38N	7E	250NL, 2600WL	400SL, 2575WL	650	S-N	1500	7353	13015	12.6	9.0	46.3	40.0	670	670	624	630	YORKVILLE
6/88	382	KANE	20	39N	8E	1300SL, 2620WL	1950SL, 2700WL	650	S-N	1500	7563	14583	9.7	13.7	49.4	53.9	728	707	677	653	AURORA.NORTH
6/66	383	KANE	20	39N	8E	1825WL, 1450SL	2450WL, 1250SL	650	W-E	1500	4742	15249	6.7	8.9	53.8	69.1	730	730	676	661	AURORA.NORTH
6/88	384	KANE	24	40N	7E	2900WL, 2375NL	1700WL, 1900NL	1300	W-E	1500	5839	13488	22.6	27.6	145	119	800	800	655	681	ELBURN
6/86	385	KANE	24	40N	7E	1700WL, 1900NL	500WL, 1425NL	1300	W-E	1500	5839	13488	15.5	18.5	150	140	800	800	650	661	ELBURN
6/88	386	KANE	24.*23	40N	7E	500WL, 1425NL	750EL, 950NL	1300	W-E	1500	5839	13488	23.0	6.6	119	153	800	800	681	647	ELBURN
6/88	387	KANE	24	40N	7E	1950EL, 2550NL	1325EL, 2800NL	650	W-E	1500	4527	10690	20.6	17.5	105	104	800	800	695	696	ELBURN
6/66	388	KANE	24	40N	7E	1325EL, 2800NL	725EL, 3050NL	650	W-E	1500	4527	10690	13.8	37.6	112	67.4	800	800	688	713	ELBURN
6/88	389	KANE	19	40N	8E	3650EL, 1150SL	2600EL, 325SL	1300	W-E	1500	5857	13606	22.3	17.7	144	128	800	800	656	672	GENEVA
6/86	390	KANE	30	40N	8E	1800EL, 200NL	675EL, 890NL	1300	W-E	1500	6135	13485	10.4	17.8	103	102	800	800	697	698	GENEVA
6/86	391	KANE	30.*29	40N	8E	675EL, 890NL	450WL, 1550NL	1300	W-E	1500	13905	0	36.4	40.4	0.0	0.0	800	800	764	760	GENEVA
6/86	392	KANE	29	40N	8E	600WL, 1650NL	1185WL, 2000NL	650	W-E	1500	5000	14491	25.3	19.4	61.0	59.5	800	800	739	741	GENEVA
6/86	393	KENDALL	1	37N	8E	1350WL, 750NL	2525WL, 1325NL	1300	W-E	1500	4777	11631	20.0	6.3	113	72.7	694	700	581	627	AURORA.SOUTH
6/86	394	WILL	6	37N	9E	500WL, 2900NL	1700WL, 3425NL	1300	W-E	1500	6043	14058	8.0	9.5	116	139	700	694	584	555	AURORA.SOUTH
6/88	395	WILL	6	37N	9E	2100SL, 1800WL	800SL, 1800WL	1300	S-N	1500	6049	14304	7.3	9.6	75.0	115	700	700	625	585	AURORA.SOUTH
6/86	396	KANE	35	38N	6E	1200EL, 2300NL	1845EL, 2350NL	650	W-E	1500	5248	16022	6.2	9.1	78.6	88.6	690	690	611	601	AURORA.SOUTH
8/66	397	KANE	36	38N	8E	0WL, 2200NL	625WL, 2000NL	650	W-E	1500	6929	13578	14.6	1.8	142	119	685	685	543	566	AURORA.SOUTH
6/88	398	KANE	36	38N	8E	625WL, 2000NL	1250WL, 1810NL	650	W-E	1500	6929	13578	0.0	13.9	114	109	685	685	571	577	AURORA.SOUTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/88	399	KANE	35	38N	8E	3000SL, 390EL	2375SL, 175EL	650	S-N	1500	5042	15412	13.7	5.7	61.8	91.2	687	685	625	594	AURORA.SOUTH
6/86	400	KANE	35.*36	38N	8E	2375SL, 175EL	1750SL, 50WL	650	S-N	1500	5591	12152	15.3	18.2	86.4	44.3	675	687	589	643	AURORA.SOUTH
6/86	401	KANE	36	38N	8E	1750SL, 50WL	1150SL, 250WL	650	S-N	1500	5796	13622	14.2	19.1	114	100	675	675	562	575	AURORA.SOUTH
6/86	402	KANE	8	39N	8E	2400SL, 25EL	1100SL, 25EL	1300	S-N	1500	5195	12078	10.7	13.0	133	143	796	758	636	615	GENEVA
6/86	403	KANE	8	39N	8E	1500NL, 10WL	200NL, 10WL	1300	S-N	1500	5791	14151	0.0	9.2	204	182	760	745	556	563	GENEVA
6/86	404	KANE	8	39N	8E	1500NL, 10WL	2800NL, 10WL	1300	S-N	1500	5791	14151	10.7	0.0	166	201	760	760	594	559	GENEVA
6/86	405	KANE	18	39N	8E	100SL, 1150EL	1400SL, 1275EL	1300	S-N	1500	5985	14409	6.3	5.1	155	137	700	700	545	563	AURORA.NORTH
6/86	406	KANE	18	39N	8E	1400SL, 1275EL	2700SL, 1300EL	1300	S-N	1500	5985	14409	2.4	7.8	143	210	700	734	557	524	AURORA.NORTH
6/88	407	KANE	5	38N	7E	1325EL, 2650NL	50EL, 2250SL	1300	W-E	1500	6697	17392	11.8	10.0	201	143	700	695	499	552	SUGAR.GROVE
6/86	408	DUPAGE	18	38N	9E	350EL, 450SL	1000EL, 450SL	650	W-E	1500	5765	13467	6.5	7.3	131	112	710	710	579	599	NAPERVILLE
6/86	409	DUPAGE	18	38N	9E	800SL, 1150EL	200SL, 1350EL	650	S-N	1500	5518	17235	5.3	6.1	127	125	710	710	583	585	NAPERVILLE
6/86	410	DUPAGE	18.*19	38N	9E	200SL, 1350EL	350NL, 1750EL	650	S-N	1500	5518	17235	6.9	2.2	90.2	127	720	710	630	583	AURORA.NORTH.*NAPERVILLE
6/86	411	KANE	24	38N	8E	1400SL, 2300EL	750SL, 2300EL	650	S-N	1500	6087	14504	10.5	8.9	77.2	146	700	706	623	560	AURORA.NORTH
6/86	412	DUPAGE	6	39N	9E	40NL, 50WL	690NL, 50WL	650	S-N	1500	5711	17641	5.0	5.7	68.5	81.5	760	760	692	679	GENEVA
6/86	413	DUPAGE	6	39N	9E	750NL, 50WL	1400NL, 50WL	650	S-N	1500	5920	17552	7.7	9.3	68.9	93.5	760	760	691	667	GENEVA
6/86	414	KANE	33	38N	8E	2050WL, 100NL	1400WL, 25NL	650	W-E	1500	7974	11497	20.7	12.0	62.6	65.2	638	624	575	559	AURORA.SOUTH
6/86	415	KANE	28	38N	8E	750SL, 1200WL	200SL, 900WL	650	S-N	1500	6452	13100	1.9	9.0	31.9	89.8	628	627	598	537	AURORA.SOUTH
6/86	416	KANE	28	38N	8E	800SL, 1250WL	1400SL, 1450WL	650	S-N	1500	7038	12484	9.7	10.0	90.5	50.4	629	629	539	579	AURORA.SOUTH
6/86	417	DUPAGE	6	37N	9E	3450NL, 1800WL	2800NL, 1800WL	650	S-N	1500	5736	12988	7.7	0.0	127	121	705	700	580	579	AURORA.SOUTH
6/86	418	DUPAGE	8	37N	9E	2800NL, 1800WL	2150NL, 1800WL	650	S-N	1500	5736	12988	1.6	10.9	120	56.7	700	702	580	645	AURORA.SOUTH
6/86	419	DUPAGE	8	37N	9E	2150NL, 1800WL	1500NL, 1800WL	650	S-N	1500	5736	12988	9.9	37.6	64.3	37.6	702	692	638	654	AURORA.SOUTH
6/86	420	DUPAGE	6	37N	9E	1500NL, 1800WL	850NL, 1800WL	650	S-N	1500	5736	12988	27.5	13.7	27.5	51.4	690	692	663	641	AURORA.SOUTH
6/86	421	DUPAGE	6	37N	9E	850NL, 1800WL	200NL, 1800WL	650	S-N	1500	5736	12988	11.2	11.7	51.6	57.9	693	692	641	634	AURORA.SOUTH
6/86	422	KANE	19	39N	8E	50NL, 1150EL	1300NL, 850EL	1300	S-N	1500	6946	13980	20.1	6.3	99.6	187	700	700	600	513	AURORA.NORTH
6/86	423	KANE	19	39N	8E	1300NL, 850EL	2600NL, 580EL	1300	S-N	1500	6946	43980	18.6	23.8	122	97.4	720	700	598	603	AURORA.NORTH
6/86	424	KENDALL	1	37N	8E	850NL, 1000WL	200NL, 750WL	650	S-N	1500	5419	13416	20.1	10.1	101	112	690	690	589	578	AURORA.SOUTH
6/86	425	KENDALL	1.*36	37N	8E	200NL, 750WL	375SL, 625WL	650	S-N	1500	5419	13416	0.0	15.7	121	99.7	690	690	569	590	AURORA.SOUTH
6/86	426	KANE	36	38N	8E	800SL, 375WL	1420SL, 175WL	650	S-N	1500	6684	12936	17.4	16.2	92.3	117	670	670	578	553	AURORA.SOUTH
6/86	427	DUPAGE	18	38N	9E	1100EL, 400SL	1750EL, 400SL	650	W-E	1500	6190	14339	12.2	16.2	65.7	142	710	710	644	568	AURORA.NORTH.*NAPERVILLE
6/86	428	DUPAGE	18	38N	9E	1100SL, 1300EL	450SL, 1300EL	650	S-N	1500	5465	13166	12.3	8.8	86.9	108	710	705	623	597	NAPERVILLE
6/86	429	DUPAGE	17	38N	9E	650WL, 850SL	1300WL, 850SL	650	W-E	1500	6016	15666	10.6	8.8	114	84.0	710	710	596	628	NAPERVILLE
6/86	430	DUPAGE	17	38N	9E	675WL, 2000SL	1250WL, 2225SL	650	W-E	1500	6008	12032	8.0	12.4	153	71.7	710	710	557	638	NAPERVILLE
6/86	431	KANE	18	38N	8E	0SL, 40WL	650SL, 40WL	650	S-N	2100	6171	13790	16.7	21.0	90.8	96.6	680	680	589	583	SUGAR.GROVE
6/86	432	KANE	18	38N	8E	650SL, 40WL	1300SL, 40WL	650	S-N	2100	6171	13790	20.9	3.2	116	128	680	680	564	552	SUGAR.GROVE
6/86	433	KANE	18	38N	8E	1300SL, 40WL	1950SL, 40WL	650	S-N	2100	6171	13790	12.6	13.6	123	67.3	680	680	557	613	SUGAR.GROVE
6/86	434	KANE	33.*28	38N	8E	100NL, 1200WL	250SL, 1750WL	650	S-N	1500	6719	12067	15.8	14.2	73.2	52.0	639	640	566	588	AURORA.SOUTH
6/86	435	KENDALL	1	37N	8E	1350WL, 750NL	1950WL, 1025NL	650	W-E	1500	5924	10399	25.3	16.4	88.7	84.8	692	692	603	607	AURORA.SOUTH
6/86	436	KENDALL	1	37N	8E	1950WL, 1025NL	2525WL, 1325NL	650	W-E	1500	5475	9997	16.7	20.8	60.2	63.5	692	697	632	634	AURORA.SOUTH
6/86	437	WILL	6	37N	9E	1800WL, 2250SL	1200WL, 2250SL	650	W-E	1500	5985	13432	12.2	6.7	113	118	698	700	585	582	AURORA.SOUTH
6/86	438	WILL	6	37N	9E	1200WL, 2250SL	625WL, 2810NL	650	W-E	1500	5985	13432	9.2	13.9	106	112	694	697	588	585	AURORA.SOUTH
6/86	439	WILL	8	37N	9E	2100SL, 1800WL	1450SL, 1800WL	650	S-N	1500	6564	14226	10.8	9.1	108	125	700	700	592	575	AURORA.SOUTH
6/86	440	WILL	6	37N	9E	1450SL, 1800WL	800SL, 1800WL	650	S-N	1500	6564	14226	13.6	10.8	48.4	109	700	700	652	591	AURORA.SOUTH
6/86	441	KANE	32	40N	8E	100EL, 1050SL	1400EL, 1000SL	1300	W-E	1500	6557	14308	13.9	9.2	158	221	790	790	532	569	GENEVA
6/86	442	KANE	32	40N	8E	1400EL, 1000SL	2700EL, 1000SL	1300	W-E	1500	6557	14308	14.6	14.3	178	258	780	790	602	532	GENEVA
6/86	443	KANE	21	42N	6E	1200EL, 700SL	2500EL, 700SL	1300	W-E	1500	6780	14673	12.1	10.6	162	156	880	880	718	724	HAMPSHIRE
6/86	444	KANE	21	42N	6E	1300EL, 700SL	1625EL, 700SL	325	W-E	1500	5321	6888	10.8	7.6	10.8	19.5	880	880	869	861	HAMPSHIRE
6/86	445	KANE	27	42N	6E	400WL, 1425NL	1700WL, 1425NL	1300	W-E	1500	6407	14091	21.1	21.1	148	169	927	918	779	750	HAMPSHIRE
6/86	446	KANE	27	42N	6E	1600WL, 1425NL	2900WL, 1425NL	1300	W-E	1500	6407	14091	17.5	14.6	172	157	915	915	743	758	HAMPSHIRE
6/86	447	KANE	27	42N	6E	1325SL, 1100WL	2350SL, 275WL	1300	S-N	1500	6401	14032	16.2	7.3	181	188	900	910	719	722	HAMPSHIRE
6/86	448	KANE	18	39N	8E	1250EL, 1250NL	2550EL, 1250NL	1300	W-E	1500	6027	14858	5.7	8.1	198	177	730	730	532	554	AURORA.NORTH
6/86	449	KANE	18	39N	8E	1250NL, 1150EL	2500NL, 1300EL	1300	S-N	1500	5737	14660	9.4	13.2	190	194	730	725	540	531	AURORA.NORTH
6/86	450	KANE	5.*8	38N	7E	1050WL, 750SL	2100WL, 50NL	1300	W-E	1500	7136	16792	24.6	25.8	171	182	725	725	554	543	SUGAR.GROVE
6/86	451	KANE	8	38N	7E	2100WL, 50NL	3150WL, 800NL	1300	W-E	1500	7136	16792	24.4	33.5	179	163	725	725	546	562	SUGAR.GROVE
6/86	452	DUPAGE	7.*6	39N	9E	500NL, 25WL	150SL, 25WL	650	S-N	1500	5539	16691	4.6	3.1	87.9	87.7	765	765	677	677	GENEVA
6/86	453	DUPAGE	6	39N	9E	150SL, 25WL	800SL, 25WL	650	S-N	1500	5539	16691	0.0	3.3	95.7	80.1	765	765	669	685	GENEVA

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Appendix A *continued*

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	454	DUPAGE	6	39N	9E	800SL, 25WL	1450SL, 25WL	650	S-N	1500	5539	16691	6.5	9.6	78.1	76.9	765	765	687	688	GENEVA
6/88	455	DUPAGE	6	39N	9E	2000SL, 25WL	2650SL, 25WL	650	S-N	1500	6178	15740	8.1	10.6	76.3	80.9	760	760	684	679	GENEVA
6/86	456	DUPAGE	6	39N	9E	2650SL, 25WL	3300SL, 25WL	650	S-N	1500	6178	15740	9.7	11.2	81.8	111	760	760	678	649	GENEVA
6/88	457	DUPAGE	6	39N	9E	100WL, 25NL	750WL, 25NL	650	W-E	1500	5589	16874	9.0	8.8	86.7	54.8	765	765	678	710	GENEVA
6/88	458	DUPAGE	7	39N	9E	3000WL, 200SL	2450WL, 275SL	650	W-E	1500	5970	17280	16.5	12.7	72.9	73.6	750	750	677	676	AURORA.NORTH
8/88	459	DUPAGE	7	39N	9E	500EL, 25SL	1150EL, 100SL	650	W-E	1500	6228	16114	4.8	6.1	52.7	85.6	745	745	692	659	NAPERVILLE
6/86	460	DUPAGE	7	39N	9E	1150EL, 100SL	1800EL, 175SL	650	W-E	1500	5882	18104	5.5	8.4	63.0	55.9	743	743	680	687	NAPERVILLE
6/86	461	KANE	26	38N	8E	1825EL, 3800SL	1200EL, 3575SL	650	W-E	1500	5827	12018	9.5	11.3	117	117	735	728	618	611	AURORA.SOUTH
6/86	462	KANE	6	39N	8E	100EL, 1500SL	1400EL, 1500SL	1300	W-E	1500	9023	18382	33.4	12.4	231	355	737	763	506	408	GENEVA
8/86	463	KANE	13	40N	7E	1075SL, 300WL	1450SL, 825WL	650	W-E	1500	6679	15217	10.1	6.8	225	107	821	821	596	714	ELBURN
6/86	464	KANE	13	40N	7E	825WL, 1450SL	1875WL, 2200SL	1300	W-E	1500	6439	12673	5.8	6.4	162	137	823	834	661	697	ELBURN
6/86	465	KANE	13	40N	7E	2150SL, 1800WL	2400NL, 2450EL	1300	W-E	1500	6504	13664	8.4	9.5	186	155	835	820	649	665	ELBURN
6/86	466	KANE	13	40N	7E	2450NL, 2525EL	1500NL, 1650EL	1300	W-E	1500	6150	13034	10.0	8.0	142	103	819	792	677	689	ELBURN
6/86	467	KANE	18	40N	8E	3350EL, 25NL	2050EL, 25NL	1300	W-E	1500	8553	12564	22.6	12.1	120	66.3	779	773	659	707	GENEVA
6/86	468	KANE	18.*17	39N	8E	1250EL, 2350NL	50WL, 2350NL	1300	W-E	1500	7014	15095	11.3	14.5	344	154	725	730	381	576	AURORA.NORTH
6/86	469	KANE	18.*17	39N	8E	1225EL, 1850SL	75WL, 1875SL	1300	W-E	1500	5988	14279	8.5	14.0	169	166	700	700	531	534	AURORA.NORTH
6/86	470	KANE	19	39N	8E	1325SL, 1300EL	25SL, 1300EL	1300	S-N	1500	6775	13342	20.0	11.6	110	130	730	739	620	610	AURORA.NORTH
6/86	471	KANE	19	39N	8E	1300EL, 25SL	650EL, 25SL	650	W-E	1500	6215	11413	14.0	10.4	117	88.6	730	730	613	641	AURORA.NORTH
6/86	472	KENDALL	1.*2	37N	8E	1740NL, 150WL	1175NL, 200EL	650	S-N	1250	3198	13359	6.0	7.0	36.9	49.8	680	680	643	630	AURORA.SOUTH
8/86	473	KANE	23	38N	7E	2790NL, 1725WL	2125NL, 1800WL	650	S-N	1500	5540	14518	20.9	17.2	83.1	106	710	710	627	604	SUGAR.GROVE
6/86	474	KANE	23	38N	7E	2175NL, 1800WL	1510NL, 1900WL	650	S-N	1500	5540	14518	15.9	19.5	97.8	100	710	710	612	610	SUGAR.GROVE
6/86	475	KANE	23	38N	7E	1555NL, 1900WL	925NL, 1975WL	650	S-N	1500	5540	14518	20.0	7.7	90.7	121	710	710	619	589	SUGAR.GROVE
6/86	476	KANE	23	38N	7E	970NL, 1975WL	340NL, 2050WL	650	S-N	1500	5540	14518	8.4	10.4	124	103	710	710	586	607	SUGAR.GROVE
6/86	477	KANE	23.*14	38N	7E	375NL, 2050WL	250SL, 2110WL	650	S-N	1500	5540	14518	11.9	17.9	96.3	66.0	710	710	614	644	SUGAR.GROVE
6/86	478	KANE	14	38N	7E	210SL, 2110WL	850SL, 2200WL	650	S-N	1500	5540	14518	18.8	16.4	56.6	65.0	710	701	653	638	SUGAR.GROVE
6/86	479	KANE	23	38N	7E	3100NL, 1700WL	3720NL, 1610WL	650	S-N	1500	5279	14817	20.3	27.4	113	127	718	718	605	591	SUGAR.GROVE
6/86	480	KANE	33	38N	8E	20NL, 2100WL	575NL, 1800WL	650	S-N	1500	6124	12076	13.2	14.7	46.2	75.9	623	621	577	545	AURORA.SOUTH
6/88	481	KANE	28	38N	8E	30SL, 2200WL	650SL, 2450WL	650	S-N	1500	4225	12786	3.0	0.4	27.0	70.9	623	621	596	550	AURORA.SOUTH
6/86	482	KANE	33	38N	8E	1250NL, 2000WL	650NL, 2225WL	650	S-N	1500	6637	12375	7.0	4.8	11.1	75.1	618	618	607	543	AURORA.SOUTH
6/86	483	KANE	33	38N	8E	700NL, 2220WL	50NL, 2425WL	650	S-N	1500	6637	12375	6.2	1.6	81.8	78.1	618	618	536	540	AURORA.SOUTH
6/88	484	KANE	28	38N	8E	0SL, 2450WL	625SL, 2675WL	650	S-N	1500	6637	12375	1.7	1.8	75.0	64.0	618	818	543	554	AURORA.SOUTH
6/86	485	KANE	35	38N	8E	2025NL, 350EL	1375NL, 450EL	650	S-N	1500	5495	13789	10.5	8.2	81.9	92.2	680	680	598	588	AURORA.SOUTH
6/86	486	KANE	36.*35	38N	8E	150WL, 1400SL	475EL, 1200SL	650	W-E	1500	6198	12395	12.7	11.7	41.0	91.5	670	670	629	579	AURORA.SOUTH
6/86	487	KANE	36	38N	8E	300WL, 1450SL	940WL, 1625SL	650	W-E	1500	5964	10917	12.7	12.6	87.5	63.3	670	670	583	607	AURORA.SOUTH
6/88	488	KENDALL	2	37N	8E	50SL, 575EL	700SL, 575EL	650	S-N	1500	6158	12520	7.1	8.9	144	97.1	725	720	581	623	AURORA.SOUTH
8/86	489	KENDALL	2	37N	8E	650SL, 575EL	1300SL, 575EL	650	S-N	1500	6158	12520	10.8	7.6	103	125	720	720	617	595	AURORA.SOUTH
6/86	490	KENDALL	2	37N	8E	1250SL, 575EL	1900SL, 575EL	650	S-N	1500	6158	12520	8.0	10.5	123	101	720	720	597	619	AURORA.SOUTH
6/86	491	KENDALL	2	37N	8E	1850SL, 575EL	2500SL, 575EL	650	S-N	1500	6158	12520	11.0	4.9	101	128	722	722	621	595	AURORA.SOUTH
8/86	492	DUPAGE	17	38N	9E	725WL, 2475SL	1375WL, 2600SL	650	W-E	1500	5829	13291	9.4	2.8	141	131	720	720	580	589	NAPERVILLE
8/86	493	DUPAGE	17	38N	9E	1325WL, 2600SL	1950WL, 2725SL	650	W-E	1500	5829	13291	11.6	10.0	120	113	720	720	600	607	NAPERVILLE
6/86	494	DUPAGE	17	38N	9E	2350WL, 2300NL	1725WL, 2450NL	650	W-E	1500	5609	12481	13.8	10.3	68.8	84.3	720	720	651	636	NAPERVILLE
6/86	495	DUPAGE	17	38N	9E	1775WL, 2450NL	1150WL, 2550NL	650	W-E	1500	6086	13485	11.3	14.4	100	111	720	720	620	609	NAPERVILLE
6/88	496	DUPAGE	19	38N	9E	1000SL, 500WL	350SL, 500WL	650	S-N	1500	5870	14868	9.5	9.0	112	109	700	700	588	592	AURORA.NORTH
6/88	497	DUPAGE	19	38N	9E	50WL, 1000SL	700WL, 1000SL	650	W-E	1500	6057	13102	7.0	12.5	107	102	700	700	593	598	AURORA.NORTH
6/86	498	KANE	21	40N	8E	100EL, 2035NL	1400EL, 2035NL	1300	W-E	1500	5898	14314	19.9	36.7	57.6	196	725	725	667	530	GENEVA
6/88	499	KANE	20.*17	40N	8E	50NL, 25EL	600SL, 25EL	650	S-N	1500	4621	12807	5.1	13.2	89.1	70.9	790	790	701	719	GENEVA
6/86	500	KANE	17	40N	8E	550SL, 25EL	1200SL, 25EL	650	S-N	1500	4621	12807	13.4	6.4	85.9	114	790	790	704	677	GENEVA
6/86	501	KANE	26	38N	8E	1800EL, 3050SL	1150EL, 3050SL	550	W-E	1500	5835	12598	10.9	7.2	129	95.0	720	720	591	625	AURORA.SOUTH
6/86	502	KANE	26	38N	8E	3350SL, 1800EL	3900SL, 1800EL	650	S-N	1500	5796	10672	5.4	9.2	88.7	119	727	727	638	608	AURORA.SOUTH
6/88	503	KANE	26	38N	8E	2700SL, 2350EL	3350SL, 2350EL	650	S-N	1500	6012	14545	5.6	10.0	92.5	111	712	709	620	598	AURORA.SOUTH
6/86	504	KANE	24	38N	8E	350WL, 650SL	1000WL, 650SL	650	W-E	1500	6540	12143	10.2	20.4	127	128	702	713	575	585	AURORA.NORTH
6/88	505	KANE	24	38N	8E	650SL, 350WL	0SL, 350WL	650	S-N	1500	5826	14288	8.4	15.8	96.0	143	700	700	604	557	AURORA.NORTH
6/88	506	KANE	35.*26	38N	8E	125NL, 150WL	450SL, 450WL	650	S-N	1500	4025	13319	9.6	3.6	98.5	39.7	657	657	559	617	AURORA.SOUTH
6/86	507	KANE	26	38N	8E	425SL, 425WL	1000SL, 725WL	650	S-N	1500	2348	11619	6.4	5.2	68.2	101	657	657	589	556	AURORA.SOUTH
6/86	508	DUPAGE	18	38N	9E	1525NL, 10EL	2175NL, 10EL	650	S-N	1500	5386	14415	8.8	7.6	109	95.2	715	720	606	625	NAPERVILLE

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Appendix A *continued*

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/86	509	DUPAGE	18	38N	9E	2125NL, 10EL	2775NL, 10EL	650	S-N	1500	6046	12140	8.7	11.8	119	66.7	711	715	592	648	NAPERVILLE
8/86	510	DUPAGE	17	38N	9E	2075NL, 275WL	2725NL, 250WL	650	S-N	1500	5665	13604	26.2	5.6	30.4	147	720	720	690	573	NAPERVILLE
6/86	511	DUPAGE	18	38N	9E	640EL, 1500NL	10EL, 1525NL	650	W-E	1500	6205	14334	11.9	10.1	111	105	728	731	817	826	NAPERVILLE
6/88	512	DUPAGE	18	38N	9E	125EL, 2450SL	775EL, 2375SL	650	W-E	1500	5714	14492	6.9	7.4	68.3	114	710	710	842	596	NAPERVILLE
8/88	513	DUPAGE	17	38N	9E	2600NL, 825WL	1950NL, 875WL	650	S-N	1500	5815	15695	10.2	12.5	129	114	720	720	591	607	NAPERVILLE
8/87	514	KANE	28	40N	8E	1200WL, 1900NL	2500WL, 1900NL	1300	W-E	1500	5076	12926	7.2	31.1	102	178	750	750	649	572	GENEVA
8/87	515	KANE	28	40N	8E	3000NL, 2300WL	1700NL, 2300WL	1300	S-N	1500	5322	13626	8.7	12.4	171	206	730	750	559	544	GENEVA
6/87	516	KANE	28	40N	8E	2700NL, 300WL	1400NL, 450WL	1300	S-N	1500	3499	14960	18.1	2.2	172	85.0	800	750	628	665	GENEVA
6/87	517	KANE	34	38N	8E	2400EL, 600NL	1750EL, 600NL	650	W-E	1500	6507	12335	18.7	20.7	90.2	105	660	660	570	555	AURORA.SOUTH
6/87	518	KANE	35	38N	8E	950NL, 50WL	300NL, 50WL	550	S-N	1100	5229	26958	12.8	13.0	116	145	660	660	544	515	AURORA.SOUTH
6/87	519	DUPAGE	19.*20	38N	9E	150EL, 850NL	500WL, 775NL	650	W-E	1100	5851	14314	5.5	6.7	101	67.6	720	720	619	652	NAPERVILLE
6/87	520	DUPAGE	20	38N	9E	810WL, 695NL	1275WL, 590NL	650	W-E	1100	5698	16072	6.3	5.4	113	47.2	720	720	607	673	NAPERVILLE
6/87	521	KANE	27	42N	6E	1050WL, 1900SL	1050WL, 2550SL	650	S-N	1100	6346	20000	9.8	19.5	198	188	905	905	707	717	HAMPSHIRE
6/87	522	KENDALL	12	37N	8E	1400WL, 700NL	2050WL, 700NL	650	W-E	1100	6135	12218	7.9	9.4	89.4	81.6	719	701	630	619	AURORA.SOUTH
8/87	523	KENDALL	12	37N	8E	2000WL, 700NL	2650WL, 700NL	650	W-E	1100	5693	14559	7.9	8.3	98.6	50.7	700	700	601	649	AURORA.SOUTH
6/87	524	KENDALL	2.*1	37N	8E	550EL, 5SL	100WL, 5SL	650	W-E	1100	5922	14516	5.8	10.4	168	113	730	730	562	617	AURORA.SOUTH
6/87	525	KENDALL	1	37N	8E	50WL, 5SL	700WL, 5SL	650	W-E	1100	5393	15241	9.4	7.4	125	116	730	730	805	614	AURORA.SOUTH
6/87	526	KENDALL	11	37N	8E	1300EL, 5NL	650EL, 5NL	650	W-E	1100	5841	15332	7.5	8.5	140	130	730	730	590	600	AURORA.SOUTH
6/87	527	KENDALL	11	37N	8E	1900EL, 5NL	1250EL, 5NL	650	W-E	1100	5841	15332	9.6	7.6	152	136	730	730	578	594	AURORA.SOUTH
4/87	528	KANE	10	39N	6E	50NL, 25EL	1350NL, 25EL	1300	S-N	1100	5914	14051	9.8	8.6	141	189	840	846	699	657	MAPLE.PARK
4/87	529	KANE	10	39N	6E	1250NL, 25EL	2550NL, 25EL	1300	S-N	1100	5914	14051	6.2	7.9	192	158	846	840	654	682	BIG.ROCK.*MAPLE.PARK
4/87	532	KANE	10	39N	6E	2875SL, 25EL	1575SL, 25EL	1300	S-N	1100	5914	14051	7.8	6.4	185	153	839	826	654	673	BIG.ROCK
4/87	533	KANE	10	39N	6E	1675SL, 25EL	375SL, 25EL	1300	S-N	1100	6014	14717	6.0	8.2	150	156	826	822	676	666	BIG.ROCK
4/87	534	KANE	10.*15	39N	6E	475SL, 25EL	825NL, 25EL	1300	S-N	1100	6014	14717	6.8	6.7	160	156	822	818	662	662	BIG.ROCK
4/87	535	KANE	15	39N	6E	725NL, 25EL	2025NL, 25EL	1300	S-N	1100	6014	14717	6.3	7.8	165	165	817	814	652	649	BIG.ROCK
4/87	536	KANE	15	39N	6E	3550NL, 25EL	4850NL, 25EL	1300	S-N	1100	5762	11996	7.7	5.5	122	117	812	808	690	691	BIG.ROCK
4/87	537	KANE	15.*22	39N	6E	4750NL, 25EL	775NL, 25EL	1300	S-N	1100	5762	11996	6.2	11.1	110	72.5	806	805	696	733	BIG.ROCK
4/87	538	KANE	22	39N	6E	675NL, 25EL	1325NL, 25EL	650	S-N	1100	5762	11996	9.0	8.3	71.8	107	805	803	733	697	BIG.ROCK
4/87	539	KANE	22	39N	6E	1275NL, 25EL	1925NL, 25EL	650	S-N	1100	5762	11996	8.1	9.6	104	94.2	802	800	699	706	BIG.ROCK
4/87	540	KANE	22	39N	6E	1875NL, 25EL	2525NL, 25EL	650	S-N	1100	5762	11996	8.2	7.2	82.4	113	800	800	717	687	BIG.ROCK
4/87	541	KANE	22	39N	6E	2475NL, 25EL	3125NL, 25EL	650	S-N	1100	6092	11969	7.1	9.8	63.3	88.8	796	800	733	711	BIG.ROCK
4/87	542	KANE	22	39N	6E	3075NL, 25EL	3725NL, 25EL	650	S-N	1100	6092	11969	5.2	8.0	55.1	59.5	790	795	735	736	BIG.ROCK
4/87	543	KANE	22	39N	6E	4500NL, 25EL	5150NL, 25EL	650	S-N	1100	5911	11937	7.8	10.1	94.7	72.5	781	790	686	718	BIG.ROCK
4/87	544	KANE	22.*27	39N	6E	5100NL, 25EL	400NL, 25EL	650	S-N	1100	5911	11937	10.9	13.8	71.8	87.0	790	788	718	701	BIG.ROCK
4/87	545	KANE	27	39N	6E	350NL, 25EL	1000NL, 25EL	650	S-N	1100	5911	11937	10.9	12.2	79.9	84.2	786	780	706	696	BIG.ROCK
4/87	548	KANE	15	39N	6E	1925NL, 25EL	3125NL, 25EL	1300	S-N	1100	6014	14717	7.8	8.1	165	131	814	812	649	681	BIG.ROCK
4/87	549	DUPAGE	29	38N	9E	2575WL, 1475NL	2900WL, 1475NL	325	W-E	1100	5041	15060	7.9	8.8	64.3	35.7	690	691	626	655	NAPERVILLE
4/87	550	KANE	25	38N	7E	1950WL, 875SL	2275WL, 975SL	325	W-E	1100	4597	12697	11.0	9.1	26.8	30.7	676	671	649	640	YORKVILLE
4/87	551	KANE	29	38N	8E	2625EL, 2900SL	3275EL, 2900SL	650	W-E	1100	13545	0	14.5	14.8	0.0	0.0	655	655	641	640	AURORA.SOUTH
4/87	552	KANE	29	38N	8E	3225EL, 2900SL	3875EL, 2975SL	650	W-E	1100	13545	0	11.8	15.1	0.0	0.0	669	655	657	640	AURORA.SOUTH
4/87	553	KANE	29	38N	8E	3825EL, 2970SL	4775EL, 3075SL	650	W-E	1100	13545	0	12.7	10.1	0.0	0.0	680	670	667	660	AURORA.SOUTH
4/87	554	KENDALL	2.*35	37N	8E	1300EL, 200NL	1775EL, 80SL	650	W-E	1100	2703	19700	6.5	6.3	31.0	50.5	670	670	639	620	AURORA.SOUTH
4/87	555	KANE	35	38N	8E	1735EL, 50NL	2300EL, 350SL	650	W-E	1100	15213	0	14.7	20.2	0.0	0.0	670	670	655	650	AURORA.SOUTH
4/87	556	KANE	35	38N	8E	2275EL, 320SL	2850EL, 600SL	650	W-E	1100	15982	0	18.7	8.9	0.0	0.0	670	670	652	661	AURORA.SOUTH
4/87	557	KANE	35	38N	8E	2810EL, 575SL	3400EL, 865SL	650	W-E	1100	15687	0	14.2	16.3	0.0	0.0	670	670	656	654	AURORA.SOUTH
4/87	558	KANE	35	38N	8E	3360EL, 850SL	3900EL, 1125SL	650	W-E	1100	14476	0	12.2	11.8	0.0	0.0	670	670	658	658	AURORA.SOUTH
4/87	559	KENDALL	2	37N	8E	925EL, 350NL	400EL, 820NL	650	W-E	1100	5747	14324	10.7	5.8	30.6	70.5	685	685	654	615	AURORA.SOUTH
4/87	560	KANE	24	38N	7E	750WL, 850NL	320WL, 375NL	650	S-N	1100	7190	12831	12.2	7.4	26.4	93.7	690	690	664	596	SUGAR.GROVE
4/87	561	KANE	29	38N	8E	2300EL, 2900SL	1650EL, 2925SL	650	W-E	1100	13529	0	13.3	12.7	0.0	0.0	670	670	657	657	AURORA.SOUTH
5/87	562	KANE	29	38N	8E	3500SL, 2600WL	4150SL, 2600WL	650	S-N	1100	6030	15694	10.6	9.3	29.3	96.2	675	660	646	564	AURORA.SOUTH
5/87	563	KANE	29	38N	8E	4100SL, 2600WL	4750SL, 2600WL	650	S-N	1100	5137	19054	8.2	8.5	102	82.4	662	673	561	591	AURORA.SOUTH.*AURORA.NORTH
5/87	564	KANE	29	38N	8E	2600WL, 10NL	1950WL, 10NL	650	W-E	1100	6113	12035	11.4	13.2	137	72.9	690	690	553	617	AURORA.NORTH
5/87	565	KANE	29	38N	8E	2000WL, 10NL	1350WL, 10NL	650	W-E	1100	5814	12962	10.5	12.0	88.1	103	685	690	597	587	AURORA.NORTH
5/87	566	KANE	29	38N	8E	1250WL, 10NL	600WL, 10NL	650	W-E	1100	3306	12952	2.5	5.0	49.3	59.8	690	685	641	625	AURORA.NORTH
5/87	567	KANE	19	38N	8E	1450NL, 25EL	2100NL, 25EL	650	S-N	1100	2857	14234	3.5	2.0	45.9	31.8	690	690	644	658	AURORA.NORTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
5/87	568	KANE	19	38N	8E	2050NL, 25EL	2700NL, 25EL	650	S-N	1100	6250	10173	10.1	6.1	33.9	32.9	690	690	656	657	AURORA.NORTH
5/87	569	KANE	19	38N	8E	700NL, 25EL	50NL, 25EL	650	S-N	1100	5294	16729	2.1	5.4	118	75.1	694	694	576	622	AURORA.NORTH
5/87	570	KANE	17	38N	8E	10SL, 10WL	610SL, 10WL	600	S-N	1100	5611	14103	4.0	7.8	80.7	45.8	694	700	613	654	AURORA.NORTH
5/87	571	KANE	18	38N	8E	1150SL, 2300EL	600SL, 2600EL	650	S-N	1100	7071	16401	9.3	11.4	69.1	99.3	890	690	621	591	AURORA.NORTH
5/87	572	KENDALL	1	37N	8E	150WL, 1750NL	500WL, 2300NL	650	S-N	1100	5544	14438	15.0	15.8	93.8	89.4	680	680	588	591	AURORA.SOUTH
5/87	573	KANE	10	39N	6E	650NL, 25EL	1950NL, 25EL	1300	S-N	1100	6071	13414	15.5	5.0	154	190	846	844	692	655	BIG.ROCK.*MAPLE.PARK
5/87	574	KANE	15	39N	6E	1325NL, 25EL	2625NL, 40EL	1300	S-N	1100	6494	15527	5.1	12.6	156	195	813	815	657	620	BIG.ROCK
5/87	575	KENDALL	1	37N	8E	475WL, 2260NL	825WL, 2810NL	650	S-N	1100	5544	14438	12.8	17.1	59.9	88.3	680	680	620	592	AURORA.SOUTH
5/87	576	KENDALL	1	37N	8E	800WL, 2730NL	1150WL, 3280NL	650	S-N	1100	5544	14438	9.0	13.1	100	58.9	680	680	580	621	AURORA.SOUTH
5/87	577	KENDALL	1	37N	8E	1125WL, 3240NL	1475WL, 3790NL	650	S-N	1100	5548	14427	9.3	8.8	55.1	94.9	680	680	625	585	AURORA.SOUTH
5/87	578	KENDALL	1	37N	8E	1450WL, 3750NL	1800WL, 4300NL	650	S-N	1100	5548	14427	10.8	9.4	70.9	55.2	680	680	609	625	AURORA.SOUTH
5/87	579	KENDALL	1	37N	8E	1775WL, 4260NL	2125WL, 4810NL	650	S-N	1100	5548	14427	12.6	11.1	85.0	67.9	680	680	595	612	AURORA.SOUTH
5/87	580	KENDALL	1	37N	8E	2100WL, 4770NL	2450WL, 5320NL	650	S-N	1100	5548	14427	13.1	13.2	85.0	82.8	680	680	595	597	AURORA.SOUTH
5/87	581	KANE	24	38N	7E	1050NL, 875WL	1700NL, 775WL	650	S-N	1100	7060	14283	10.1	8.2	85.1	156	690	685	605	529	SUGAR.GROVE
5/87	582	KANE	24	38N	7E	1650NL, 780WL	2300NL, 700WL	650	S-N	1100	7504	12246	12.7	8.7	135	85.8	690	683	568	606	SUGAR.GROVE
5/87	583	KANE	24	38N	7E	2050SL, 875WL	2700SL, 675WL	650	S-N	1100	6709	13881	12.4	7.0	105	53.8	681	697	576	643	SUGAR.GROVE
5/87	584	KANE	24	38N	7E	1450SL, 950WL	2100SL, 870WL	650	S-N	1100	6522	14067	7.6	6.5	28.6	77.6	680	680	651	602	SUGAR.GROVE
5/87	585	KANE	25	38N	7E	4125SL, 1225WL	4700SL, 950WL	650	S-N	1100	12960	0	9.2	8.1	0.0	0.0	680	669	671	661	YORKVILLE
5/87	586	KANE	25	38N	7E	2750SL, 1900WL	3375SL, 1650WL	650	S-N	1500	14492	0	13.3	18.5	0.0	0.0	660	660	647	642	YORKVILLE
5/87	587	KANE	25	38N	7E	2800SL, 1875WL	2200SL, 2100WL	650	S-N	1500	14492	0	20.7	14.1	0.0	0.0	660	660	639	646	YORKVILLE
5/87	588	KANE	25	38N	7E	2420WL, 1050SL	2100WL, 925SL	325	S-N	1500	6144	15306	10.8	14.7	57.9	33.8	660	660	602	626	YORKVILLE
5/87	589	KANE	25	38N	7E	2120WL, 930SL	1830WL, 855SL	325	S-N	1500	6144	15306	14.1	6.3	62.2	59.6	670	660	608	600	YORKVILLE
5/87	590	KANE	24	38N	7E	1000WL, 1100NL	1450WL, 1550NL	650	W-E	1500	7777	16521	4.5	18.0	135	125	680	680	545	555	SUGAR.GROVE
5/87	591	KANE	24	38N	7E	1400WL, 1525NL	1825WL, 2000NL	650	W-E	1500	7777	16521	17.6	14.3	102	86.3	680	680	578	594	SUGAR.GROVE
5/87	592	KANE	23	38N	7E	1600WL, 1200SL	2100WL, 750SL	650	W-E	1500	4987	12008	21.4	15.8	92.3	123	710	710	618	587	SUGAR.GROVE
5/87	593	KANE	23	38N	7E	2100WL, 750SL	2600WL, 350SL	650	W-E	1500	4987	12008	14.6	16.1	124	83.5	710	710	586	627	SUGAR.GROVE
5/87	594	KANE	23	38N	7E	2500WL, 400SL	3125WL, 225SL	650	W-E	1500	4987	12008	16.3	8.3	58.0	101	710	710	652	609	SUGAR.GROVE
5/87	595	KANE	23	38N	7E	1650WL, 2400SL	1010WL, 2500SL	650	W-E	1500	6460	13339	21.7	10.2	93.8	113	715	715	621	602	SUGAR.GROVE
5/87	596	KANE	23	38N	7E	3010WL, 260SL	3725WL, 50SL	650	W-E	1500	4040	14383	11.8	14.4	78.5	74.0	710	710	632	636	SUGAR.GROVE
5/87	597	KANE	29	38N	8E	3450SL, 2650EL	2900SL, 2625EL	550	S-N	1100	13475	0	12.7	12.6	0.0	0.0	652	659	639	646	AURORA.SOUTH
5/87	598	KANE	15	38N	8E	2450WL, 1025NL	2300WL, 700NL	325	S-N	1100	15537	0	8.8	8.4	0.0	0.0	630	630	621	622	AURORA.NORTH
5/87	599	KANE	10	38N	8E	925SL, 1550WL	600SL, 1700WL	325	S-N	1500	15781	0	13.6	14.1	0.0	0.0	640	640	626	626	AURORA.NORTH
5/87	600	KANE	20	38N	8E	2550WL, 450SL	1950WL, 450SL	600	W-E	1500	6489	21341	10.8	10.2	151	145	690	690	539	545	AURORA.NORTH
5/87	601	KANE	20	38N	8E	1930WL, 450SL	1930WL, 1100SL	650	S-N	1500	5843	17143	4.4	7.5	184	43.5	690	690	506	647	AURORA.NORTH
5/87	602	KANE	20	38N	8E	1550EL, 10NL	900EL, 10NL	650	W-E	1500	6250	14807	6.9	5.2	66.6	18.2	690	690	623	672	AURORA.NORTH
5/87	603	KANE	19	38N	8E	700NL, 2125EL	1350NL, 2200EL	650	S-N	1100	6043	14672	7.5	6.8	54.4	124	690	690	636	566	AURORA.NORTH
5/87	604	KANE	18.*19	38N	8E	100SL, 2550EL	530NL, 2400EL	650	S-N	1100	6325	14818	6.1	9.1	103	89.4	690	690	588	601	AURORA.NORTH
5/87	605	KANE	19	38N	8E	1200NL, 1775EL	1780NL, 2050EL	650	S-N	1100	6231	15367	8.5	8.9	55.5	107	690	690	635	583	AURORA.NORTH
5/87	606	KANE	19	38N	8E	2225EL, 2275NL	2875EL, 2275NL	650	W-E	1500	7294	22786	19.7	10.5	86.0	219	680	680	594	461	AURORA.NORTH
5/87	607	KANE	19	38N	8E	2825EL, 2275NL	3225EL, 2650NL	550	W-E	1500	5711	13793	11.7	10.9	51.2	69.4	678	678	627	609	AURORA.NORTH
5/87	608	KANE	19	38N	8E	2400NL, 3840EL	3050NL, 3800EL	650	S-N	1500	6034	14504	10.0	10.4	60.7	67.6	680	680	619	612	AURORA.NORTH
5/87	609	KANE	19	38N	8E	3000NL, 3800EL	3650NL, 3750EL	650	S-N	1500	6034	14504	9.0	4.9	63.3	54.6	680	680	617	625	AURORA.NORTH
5/87	610	KANE	13	38N	7E	1125SL, 2375WL	600SL, 2750WL	650	S-N	1500	7238	15869	10.6	18.8	127	28.1	670	680	543	652	SUGAR.GROVE
5/87	611	KANE	14	38N	7E	1425SL, 1820EL	800SL, 1890EL	650	S-N	1500	7603	14664	9.2	13.5	52.8	41.0	680	700	627	659	SUGAR.GROVE
5/87	612	KANE	22	40N	8E	175SL, 1150WL	825SL, 1150WL	650	S-N	1500	6863	14497	12.9	12.2	88.2	81.3	700	700	612	619	GENEVA
5/87	613	KANE	22	40N	8E	775SL, 1150WL	1425SL, 1200WL	650	S-N	1500	6863	14497	11.3	9.4	77.3	88.5	700	700	623	612	GENEVA
5/87	614	KANE	22	40N	8E	300SL, 2800EL	950SL, 2800EL	650	S-N	1500	6057	11374	13.4	14.3	96.0	92.8	770	770	674	677	GENEVA
5/87	615	KANE	22	40N	8E	2700NL, 550WL	2100NL, 800WL	650	S-N	1500	6234	11614	4.7	5.8	82.9	94.9	690	690	607	595	GENEVA
5/87	616	KANE	22	40N	8E	1700NL, 950WL	1100NL, 1225WL	650	S-N	1500	6440	10299	6.2	7.2	72.7	107	690	690	617	583	GENEVA
5/87	617	KANE	24	38N	8E	1175WL, 2175SL	1525WL, 2175SL	325	W-E	1500	5890	0	8.5	11.7	0.0	0.0	715	715	707	703	AURORA.NORTH
5/87	618	KANE	23	38N	8E	900WL, 800NL	1525WL, 900NL	650	W-E	1500	15434	0	25.5	17.6	0.0	0.0	625	635	600	617	AURORA.SOUTH
6/87	619	KANE	13	38N	7E	2575SL, 1800WL	2000SL, 2150WL	650	S-N	1500	6098	15013	11.4	12.5	43.5	80.3	690	690	647	610	SUGAR.GROVE
6/87	620	KANE	13	38N	7E	3175WL, 400SL	3815WL, 300SL	650	W-E	1500	6554	14232	13.3	4.4	81.4	95.3	670	670	589	575	SUGAR.GROVE
6/87	621	KANE	13	38N	7E	1700NL, 2700WL	1050NL, 2700WL	650	S-N	1500	4934	15070	5.5	12.9	45.4	69.4	675	680	630	611	SUGAR.GROVE
6/87	622	KANE	13	38N	7E	1100NL, 2700WL	450NL, 2700WL	650	S-N	1500	4934	15070	13.5	14.5	65.1	59.7	680	680	615	620	SUGAR.GROVE

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
6/87	623	KANE	12	38N	7E	500SL, 2675WL	1150SL, 2700WL	650	S-N	1500	6098	14253	14.6	10.9	43.8	48.2	685	680	641	637	SUGAR.GROVE
6/87	624	KANE	12	38N	7E	1100SL, 2700WL	1750SL, 2700WL	650	S-N	1500	6684	15541	8.9	9.5	59.2	39.8	685	685	628	645	SUGAR.GROVE
7/67	625	KANE	26	38N	8E	875SL, 900WL	1525SL, 925WL	650	S-N	1500	5277	17256	13.9	11.1	118	99.0	660	660	545	561	AURORA.SOUTH
7/87	626	KANE	12	38N	7E	2275SL, 2720WL	2775SL, 3175WL	650	S-N	1500	5986	15413	12.8	8.5	54.9	59.2	700	690	645	631	SUGAR.GROVE
7/87	627	KANE	12	38N	7E	2740SL, 3140WL	3200SL, 3575WL	650	S-N	1500	5988	15413	10.2	12.1	58.6	45.7	690	680	631	634	SUGAR.GROVE
7/87	628	KANE	12	38N	7E	4000WL, 1275NL	4575WL, 1550NL	650	W-E	1500	9041	14855	5.8	8.1	61.4	57.9	680	675	619	617	SUGAR.GROVE
7/87	629	KANE	12	38N	7E	4540WL, 1525NL	5110WL, 1825NL	650	W-E	1500	9041	14855	8.2	14.1	56.8	41.3	675	680	618	639	SUGAR.GROVE
7/87	630	KANE	19	38N	8E	2625NL, 2150EL	1975NL, 2150EL	650	S-N	1500	6598	12699	8.5	13.2	126	91.3	685	685	559	594	AURORA.NORTH
7/87	631	KENDALL	12	37N	8E	2600SL, 1375WL	1950SL, 1375WL	650	S-N	1500	5816	13448	11.3	7.2	117	122	725	725	608	603	AURORA.SOUTH
7/87	632	KENDALL	12	37N	6E	2000SL, 1375WL	1350SL, 1375WL	650	S-N	1500	5816	13448	7.5	12.5	87.0	124	730	730	843	608	AURORA.SOUTH
7/87	633	KENDALL	12	37N	8E	1400SL, 1375WL	750SL, 1375WL	650	S-N	1500	5816	13448	6.9	7.2	104	103	730	730	626	627	AURORA.SOUTH
7/87	634	KENDALL	12	37N	8E	2550SL, 1375WL	3200SL, 1375WL	650	S-N	1500	5914	13843	9.5	8.7	152	118	725	725	574	608	AURORA.SOUTH
7/87	635	KENDALL	12	37N	8E	3150SL, 1375WL	3800SL, 1375WL	650	S-N	1500	5914	13843	6.7	8.1	122	110	720	720	598	610	AURORA.SOUTH
7/87	636	KENDALL	12	37N	8E	3750SL, 1375WL	4400SL, 1375WL	650	S-N	1500	5914	13843	6.7	6.4	112	103	720	722	608	619	AURORA.SOUTH
7/67	637	KANE	19	38N	8E	2150EL, 2825NL	1500EL, 2825NL	650	W-E	1500	6916	17857	15.1	14.7	129	166	685	685	556	520	AURORA.NORTH
7/87	638	KANE	19	38N	8E	1400EL, 2825NL	850EL, 2825NL	650	W-E	1500	5587	18838	12.3	12.3	118	131	690	690	572	559	AURORA.NORTH
7/87	639	KANE	19	38N	8E	1975SL, 375EL	1325SL, 375EL	650	S-N	1500	7167	15371	16.1	16.4	150	152	690	690	540	538	AURORA.NORTH
7/87	640	KANE	19	38N	8E	1025SL, 1150EL	375SL, 1150EL	650	S-N	1500	6806	13646	14.9	14.9	64.0	64.5	690	690	626	626	AURORA.NORTH
7/87	841	KANE	19	38N	8E	775SL, 1120EL	775SL, 470EL	650	W-E	1500	6471	14626	13.7	9.0	97.5	77.8	690	690	593	612	AURORA.NORTH
9/87	642	KANE	19	38N	8E	3200WL, 2275NL	3850WL, 2295NL	650	W-E	1500	6638	14085	10.5	13.6	103	93.8	688	690	585	596	AURORA.NORTH
7/87	643	KANE	19	38N	8E	850SL, 375EL	1500SL, 375EL	650	S-N	1500	6526	11732	9.7	13.6	147	102	690	690	543	588	AURORA.NORTH
7/87	644	KANE	30	38N	8E	175NL, 1150EL	825NL, 1150EL	650	S-N	1500	6548	13273	19.0	11.5	45.8	49.4	690	690	644	641	AURORA.SOUTH.*AURORA.NORTH
7/87	645	KANE	30	38N	8E	1125EL, 4000SL	475EL, 4000SL	650	W-E	1500	7558	14326	14.8	16.5	82.3	40.2	680	680	598	640	AURORA.SOUTH
7/67	646	KANE	36	38N	8E	1250WL, 1810NL	1875WL, 1625NL	650	W-E	1500	5419	15097	4.0	7.0	50.2	47.8	685	685	635	637	AURORA.SOUTH
7/87	647	KANE	36	38N	8E	1830WL, 1640NL	2425WL, 1450NL	650	W-E	1500	5197	29765	11.1	11.4	66.5	120	685	690	619	570	AURORA.SOUTH
7/87	648	KANE	36	38N	8E	2390WL, 1470NL	3000WL, 1300NL	650	W-E	1500	5197	29765	8.2	11.5	121	109	690	690	569	580	AURORA.SOUTH
8/87	649	KANE	32	40N	7E	1800NL, 1275EL	500NL, 1275EL	1300	S-N	1500	6389	13185	8.6	10.6	254	145	910	885	656	740	ELBURN
8/87	650	KANE	32.*29	40N	7E	600NL, 1275EL	700SL, 1275EL	1300	S-N	1500	6389	13185	11.5	9.4	145	155	885	885	740	730	ELBURN
8/87	851	KANE	29	40N	7E	600SL, 1275EL	1900SL, 1275EL	1300	S-N	1500	6389	13185	8.3	8.2	163	144	885	890	722	746	ELBURN
8/87	652	KANE	19.*29	40N	7E	850EL, 125SL	265WL, 525NL	1300	W-E	1500	6545	12190	11.9	12.0	227	205	930	905	703	701	ELBURN
8/87	653	KANE	29	40N	7E	180WL, 450NL	1275WL, 1150NL	1300	W-E	1500	6545	12190	17.3	9.9	203	243	905	930	702	687	ELBURN
8/87	654	KANE	29	40N	7E	1200WL, 1100NL	2400WL, 1650NL	1300	W-E	1500	6545	12190	10.6	12.6	248	172	930	925	682	753	ELBURN
8/87	655	KANE	31	40N	7E	1400NL, 20EL	100NL, 20EL	1300	S-N	1500	6455	13820	12.2	15.4	187	157	900	905	713	748	ELBURN
8/87	656	KANE	31.*30	40N	7E	200NL, 20EL	1100SL, 20EL	1300	S-N	1500	6455	13820	15.9	13.2	138	191	905	890	767	699	ELBURN
8/87	657	KANE	30	40N	7E	1900NL, 575EL	720NL, 1100EL	1300	S-N	1500	6587	11321	7.1	14.9	235	132	910	910	675	778	ELBURN
8/87	858	KANE	29	40N	7E	2300WL, 1600NL	3475WL, 2120NL	1300	W-E	1500	7748	9060	7.9	23.1	220	23.1	925	915	706	892	ELBURN
8/87	659	KANE	29.*26	40N	7E	275EL, 2650SL	950WL, 2200SL	1300	W-E	1500	6495	13467	8.3	16.0	230	238	935	915	705	678	ELBURN
8/87	860	KANE	35	38N	8E	1050EL, 2300NL	410EL, 2225NL	650	W-E	1500	5363	16956	6.9	10.9	106	73.1	690	690	584	620	AURORA.SOUTH
8/87	661	KANE	36	38N	8E	2955WL, 1305NL	3600WL, 1110NL	650	W-E	1500	5197	29765	12.2	13.2	106	107	690	685	585	578	AURORA.SOUTH
8/87	662	KANE	35	38N	8E	1300EL, 2300NL	1948EL, 2350NL	650	W-E	1500	4731	13396	0.0	6.2	69.5	58.9	690	690	621	631	AURORA.SOUTH
8/87	663	KANE	35	38N	8E	1898EL, 2350NL	2546EL, 2400NL	650	W-E	1500	4731	13396	7.3	3.4	59.5	66.7	690	690	631	623	AURORA.SOUTH
8/67	664	KANE	35	38N	8E	2496EL, 2400NL	3144EL, 2450NL	650	W-E	1500	4731	13396	7.7	9.0	62.9	57.4	690	690	627	633	AURORA.SOUTH
8/87	665	KANE	24	38N	8E	675WL, 2175SL	1325WL, 2175SL	650	W-E	1500	5586	16088	11.1	10.0	103	121	720	715	618	594	AURORA.NORTH
8/87	666	KANE	24	38N	8E	2235SL, 2000WL	2885SL, 2000WL	650	S-N	1500	5483	13828	10.8	10.1	123	119	715	715	592	596	AURORA.NORTH
8/87	667	KANE	29	38N	8E	1275EL, 3475SL	625EL, 3475SL	650	W-E	1500	5830	13782	17.9	18.9	81.8	99.8	660	660	578	560	AURORA.SOUTH
9/87	668	KANE	14	40N	8E	1500WL, 900SL	2125WL, 725SL	650	W-E	1500	15630	0	11.4	12.4	0.0	0.0	716	715	705	703	GENEVA
9/87	669	KANE	14	40N	8E	725WL, 1380SL	1175WL, 1050SL	550	W-E	1500	5982	12621	28.6	23.6	85.1	103	710	714	625	611	GENEVA
9/67	670	KANE	15	40N	8E	1220EL, 1500SL	675EL, 1600SL	650	W-E	1500	5688	12273	15.9	22.2	102	112	700	708	598	596	GENEVA
9/87	671	KANE	15	40N	8E	875EL, 2975SL	225EL, 2900SL	650	W-E	1500	4445	8055	17.1	14.7	141	80.1	782	772	641	692	GENEVA
9/87	872	KANE	15	40N	8E	2600SL, 700EL	3240SL, 850EL	650	S-N	1500	3983	10479	5.4	16.2	122	134	776	782	655	648	GENEVA
9/87	673	KANE	14	40N	8E	950WL, 2000SL	1675WL, 1800SL	650	W-E	1500	3644	11450	14.3	8.7	118	99.3	764	763	646	664	GENEVA
9/87	674	KANE	14	40N	8E	375WL, 2150SL	1000WL, 1980SL	650	W-E	1500	3644	11450	9.9	24.7	47.4	130	759	763	712	633	GENEVA
9/87	675	KANE	29	38N	8E	3500SL, 10EL	4150SL, 10EL	850	S-N	1500	10756	19765	13.4	18.2	26.7	65.9	655	660	628	594	AURORA.SOUTH
9/87	676	KANE	29	38N	8E	725NL, 10EL	75NL, 10EL	650	S-N	1500	9766	20873	20.4	17.2	73.6	76.5	659	671	585	595	AURORA.NORTH
9/87	677	KANE	28	38N	8E	10WL, 750NL	660WL, 750NL	650	W-E	1500	14233	18890	21.4	14.0	66.0	50.5	660	650	594	600	AURORA.NORTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.

Date	Profile	County	Sec	Twn	Rng	Endpoint 1	Endpoint 2	Length of Profile (ft.)	Trend	Compressional wave velocities (ft./sec.) Layer 1	Layer 2	Layer 3	Depth to top of layer 2 at endpoints (ft.)		Depth to top of layer 3 endpoints (ft.)		Surface elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	Bedrock elevation at endpoints (ft. above MSL) Elev. 1	Elev. 2	7.5 Quad
9/87	678	KANE	28	38N	8E	2100SL, 1225WL	2675SL, 1575WL	650	S-N	1500	12919	0	10.8	8.3	0.0	0.0	650	640	639	632	AURORA.SOUTH
9/87	879	KANE	28	38N	8E	1875SL, 300WL	2400SL, 600WL	600	S-N	1500	5468	11905	7.9	10.5	53.5	86.0	645	645	592	559	AURORA.SOUTH
9/87	680	KANE	28	38N	8E	2300SL, 950WL	2850SL, 1300WL	650	S-N	1500	12015	19996	11.1	13.4	87.7	60.9	647	640	559	579	AURORA.SOUTH
9/87	681	KANE	28	38N	8E	1780SL, 750WL	2150SL, 975WL	450	S-N	1500	6660	19523	9.2	13.4	84.3	105	648	648	564	543	AURORA.SOUTH
9/87	682	KANE	16.*15	40N	8E	2100NL, 400EL	2100NL, 900WL	1300	W-E	1500	3200	13365	2.0	2.1	91.1	93.0	750	740	659	647	GENEVA
9/87	683	KANE	15	40N	8E	2730NL, 800WL	2100NL, 900WL	650	S-N	1500	8172	13067	70.3	62.0	136	111	740	740	604	629	GENEVA
9/87	684	KANE	15	40N	8E	3300NL, 700WL	2680NL, 800WL	650	S-N	1500	8172	13067	54.5	66.0	163	135	740	740	577	605	GENEVA
9/87	686	KANE	22	40N	8E	635NL, 300WL	0NL, 400WL	650	S-N	1500	6059	11766	45.9	35.4	120	123	725	730	605	608	GENEVA
9/87	687	KANE	22	40N	8E	1630NL, 120WL	1000NL, 225WL	650	S-N	1500	6308	13231	55.7	24.8	143	155	723	730	580	575	GENEVA
9/87	688	KANE	21.*22	40N	8E	525EL, 1500NL	120WL, 1630NL	650	W-E	1500	6041	11629	39.3	42.3	109	152	720	723	611	571	GENEVA
9/87	689	KANE	21.*22	40N	8E	425EL, 1000NL	225WL, 1000NL	650	W-E	1500	5024	12888	15.9	17.6	102	112	722	729	620	617	GENEVA
9/87	690	KANE	19	38N	8E	100WL, 850NL	745WL, 940NL	650	W-E	1500	6963	13843	9.4	7.0	40.2	75.1	677	679	637	604	SUGAR.GROVE.*AURORA.NORTH
9/87	891	KANE	19	38N	8E	695WL, 930NL	1340WL, 1025NL	650	W-E	1500	6963	13843	8.9	14.3	88.1	96.2	679	685	593	589	AURORA.NORTH
9/87	692	KANE	19	38N	8E	1290WL, 1015NL	1935WL, 1110NL	650	W-E	1500	6963	13843	12.1	10.5	104	139	685	691	581	552	AURORA.NORTH
9/87	693	KANE	19	38N	8E	200WL, 2150NL	850WL, 2175NL	650	W-E	1500	6600	17127	10.8	11.4	57.0	83.9	678	680	621	596	AURORA.NORTH
9/87	694	KANE	19	38N	8E	800WL, 2175NL	1450WL, 2200NL	650	W-E	1500	6600	17127	11.0	18.5	76.9	49.0	680	679	603	630	AURORA.NORTH
9/87	695	KANE	19	38N	8E	1400WL, 2200NL	2050WL, 2225NL	650	W-E	1500	6600	17127	15.1	10.4	58.7	164	680	683	621	519	AURORA.NORTH
9/87	696	KANE	19	38N	8E	2000WL, 2225NL	2650WL, 2250NL	650	W-E	1500	6638	14085	9.0	4.8	158	87.5	683	685	525	598	AURORA.NORTH
9/87	697	KANE	19	38N	8E	2600WL, 2250NL	3250WL, 2275NL	650	W-E	1500	6638	14085	7.5	9.7	102	106	685	688	583	582	AURORA.NORTH
9/87	698	KANE	15	40N	8E	920WL, 1775SL	1570WL, 1750SL	650	W-E	1500	5470	10422	46.8	41.0	92.9	92.4	738	733	645	641	GENEVA
9/87	699	KANE	15	40N	8E	1750SL, 1250WL	2400SL, 1265WL	650	S-N	1500	6140	10835	52.1	60.4	115	106	738	738	623	632	GENEVA
9/87	700	KANE	15	40N	8E	2350SL, 1265WL	3000SL, 1280WL	650	S-N	1500	6140	10835	60.7	99.9	88.4	110	738	738	650	628	GENEVA
9/87	701	KANE	21.*22	40N	8E	425EL, 100NL	225WL, 1100NL	650	W-E	1500	5394	13941	33.5	22.4	116	136	723	720	607	584	GENEVA
9/87	702	KANE	21.*22	40N	8E	1150EL, 1250NL	150WL, 1300NL	1300	W-E	1500	6172	13255	28.6	17.2	86.2	164	720	720	634	556	GENEVA
9/87	703	KANE	21.*22	40N	8E	525EL, 1775NL	125WL, 1800NL	650	W-E	1500	6288	11675	29.7	38.5	150	128	722	726	572	598	GENEVA
9/87	704	KANE	21.*16	40N	8E	475NL, 720EL	175SL, 620EL	650	S-N	1500	7539	11210	40.9	55.0	99.6	111	722	730	622	619	GENEVA
9/87	705	KANE	18.*15	40N	8E	650EL, 1830SL	650WL, 1820SL	1300	W-E	1500	4618	12730	3.3	30.3	128	88.3	759	740	631	652	GENEVA
9/87	706	KANE	15	40N	8E	2230SL, 2025EL	2875SL, 1880EL	650	S-N	1500	6556	14150	14.3	21.7	126	120	700	705	574	585	GENEVA
9/87	707	KANE	29	38N	8E	3525SL, 425EL	4175SL, 425EL	650	S-N	1500	7618	19728	20.9	15.7	107	128	660	665	554	537	AURORA.SOUTH
9/87	708	KANE	29	38N	8E	500EL, 4150SL	1150EL, 4150SL	650	W-E	1500	8164	21206	23.8	17.2	104	138	685	665	561	527	AURORA.SOUTH
9/87	709	KANE	29	38N	8E	1300EL, 4160SL	1950EL, 4170SL	650	W-E	1500	5731	16505	12.2	20.3	89.8	125	680	663	570	539	AURORA.SOUTH
9/87	710	KANE	29	38N	8E	3525SL, 1975EL	4175SL, 1965EL	650	S-N	1500	5323	17945	14.9	11.9	98.4	83.0	657	661	559	578	AURORA.SOUTH
9/87	711	KANE	29	38N	8E	4175SL, 1965EL	4825SL, 1955EL	650	S-N	1500	5340	16093	6.5	12.0	102	122	681	673	559	552	AURORA.SOUTH.*AURORA.NORTH
9/87	712	KANE	20	38N	8E	20SL, 1880EL	670SL, 1890EL	600	S-N	0	0	0	0.0	0.0	0.0	0.0	0	0	0	0	AURORA.NORTH
9/87	715	KANE	34	38N	8E	350NL, 725WL	995NL, 625WL	650	S-N	1500	6401	13838	9.4	13.6	79.1	55.5	653	661	574	606	AURORA.SOUTH
9/87	716	KANE	34	38N	8E	1050NL, 1000WL	1700NL, 1030WL	650	S-N	1500	5607	15744	21.1	19.5	79.7	74.9	650	669	570	594	AURORA.SOUTH
9/87	717	KANE	34	38N	8E	350NL, 1500WL	995NL, 1400WL	650	S-N	1500	6341	13874	20.4	21.0	86.0	88.9	672	673	586	584	AURORA.SOUTH
9/87	718	KANE	34.*27	38N	8E	175NL, 1600WL	470SL, 1700WL	650	S-N	1500	6938	14769	16.0	19.1	106	94.1	673	673	567	579	AURORA.SOUTH
9/87	719	KANE	27	38N	8E	225SL, 2010WL	870SL, 2110WL	650	S-N	1500	5970	14820	18.1	20.1	71.2	79.3	873	673	602	594	AURORA.SOUTH
9/87	720	KANE	34	38N	8E	1950NL, 2350EL	1300NL, 2350EL	650	S-N	1500	5520	16141	22.9	18.3	58.4	94.5	680	675	622	581	AURORA.SOUTH

Coordinates of endpoints, depths to layers beneath endpoints, surface elevations and bedrock elevations are in accordance with trend of profile convention W-E and S-N.